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A Clinical Lecture
ON
ERYTHEMA NODOSUM AND RHEUMATISM.

Delivered at Bristol General Hospital.

BY J. ODERY SYMES, M.D. LOND., D.P.H.,
M.R.C.S. ENG., L.R.C.P. LOND.,
ASSISTANT PHYSICIAN AND BACTERIOLOGIST, BRISTOL GENERAL HOSPITAL.

GENTLEMEN,—The disease (erythema nodosum) which I am bringing to your notice to-day is more commonly seen amongst hospital out-patients than in private practice. Many cases are so slight that the condition is passed over without medical aid being called for, and in severe cases the rash may be so ill-defined, and the constitutional symptoms so severe that the case is wrongly diagnosed as rheumatic fever, enteric fever, or broncho-pneumonia. Two entirely different views are held as to the nature of erythema nodosum. The more widely accepted view is that the condition is rheumatic in origin, like chorea, tonsillitis, endocarditis, and pericarditis, a manifestation or symptom of the rheumatic state. The second view, which is gradually gaining ground at the present time, is that erythema nodosum is an acute infective fever of a definitely specific nature.

I purpose to bring to your notice some of the facts for and against the theory of the rheumatic origin of the disease, and although these facts may not enable you to arrive at any definite conclusion, they cannot fail to stimulate your interest and lead you to pay a closer attention to such cases as you may meet in the future. First let me read an abstract of the notes on a case of erythema nodosum recently in the hospital.

A married woman, aged 50 years, was admitted to the Bristol General Hospital on Dec. 8th, 1905, suffering from erythema nodosum. She had always enjoyed good health and had no family or personal history of rheumatism. On admission the temperature was 101° F., the pulse was 100, and the respirations were 30. The rash, which had been out for 14 days, was thickest on the extensor surfaces of the thighs in their outer aspect just above the knees; it was also present on the extensor aspect of the legs and the ulnar side of the forearms. There were patches of desquamation on both arms and legs. There were œdema of the legs and pain in the knees and stiffness and pain in the elbows and carpo-metacarpal joints of the hands. There was no sweating. There was a systolic apical bruit over the heart conducted outwards. The pulse tension was high and there was a trace of albumin in the urine. The blood showed: hæmoglobin, 80 per cent.; red cells, 4,200,000; and white cells, 20,000 per cubic millimetre. A differential count showed: finely granular oxyphile leucocytes, 74 per cent.; coarsely granular oxyphile leucocytes, 1 per cent.; large hyaline cells, 7 per cent.; and lymphocytes, 18 per cent. There was slight bronchitis. The teeth were defective and the gums were very foul. The patient was given 20 grains of sodium salicylate every four hours, and the temperature, which had risen on one occasion to 102·4°, was normal on the fourth day. On the night of the fifth day she was noisy and delirious and the salicylate was stopped. The temperature then rose to 100 4° and remained above normal for eight days, during which time the patient was given 15 grains of aspirin three times a day. The rash disappeared on Dec. 21st (27 days from its first appearance), leaving profuse desquamation, and on the 29th there was still complaint of pain and stiffness in the joints. The apical bruit, which had on occasions quite disappeared, was still faintly audible when the patient left the hospital on Jan. 20th, 1906. The illness had lasted eight weeks.

Such a case as this serves to show the close resemblance there is clinically between erythema nodosum and acute rheumatism, and we may now compare seriatim the predisposing causes of the two diseases.

Age.—Erythema nodosum is essentially a disease of youth and adolescence, the majority of cases occurring during the second and third decades of life. Thus of 125 cases:—

25	cases, or 20·0	per cent.	of the total	occurred in the	1st decade.
51	,, 40·8	,,	,,	,,	2nd ,,
8	,, 22·4	,,	,,	,,	3rd ,,
13	,, 10·4	,,	,,	,,	4th ,,
3	,, 2·4	,,	,,	,,	5th ,,
3	,, 2·4	,,	,,	,,	6th ,,
2	,, 1·6	,,	,,	,,	7th ,,

The age distribution of this disease, therefore, closely approximates to that of acute rheumatism, as may be evidenced from a table which I have published elsewhere[1]: First decade, 8·3 per cent.; second decade, 31·5 per cent.; third decade, 24·3 per cent.; fourth decade, 23·3 per cent.; fifth decade, 9·3 per cent.; and sixth decade, 3·1 per cent. It is unusual for erythema nodosum to occur in infancy or old age. The youngest case in my series was three years old and the oldest 63.

Sex.—Whilst acute rheumatism attacks males more than females, erythema nodosum is nearly three times as common amongst women. In the present series of cases 36 were males and 89 were females. As age advances the proportion of women to men attacked becomes higher, the converse to what is seen in acute rheumatism.

Season.—The incidence curve of acute rheumatism presents, it will be remembered, a sharp autumnal rise. It is a curve closely resembling that of scarlet fever and erysipelas. The incidence curve of erythema nodosum shows no such rise. Of 139 cases 32 occurred in the first quarter of the year, 37 in the second, 26 in the third, and 44 in the fourth.

Previous illness.—The prodromal symptoms of erythema nodosum may extend over a period of from one to three or four weeks. They are malaise, fever, headache, pains in the limbs, dyspepsia, and tonsillitis. They are often misinterpreted and a diagnosis of rheumatism, influenza, gastric fever, or broncho-pneumonia is made, and when later the typical rash appears it is regarded as secondary in character. There is, however, but little evidence to prove that erythema nodosum is secondary to any infective process unless it be acute rheumatism. In considering the relationship between erythema nodosum and rheumatism too much importance must not be attached to the existence of febrile arthritis, a symptom which is met with in many diseases other than rheumatism, and it must be remembered that the arthritis of erythema nodosum is in many ways very different in character from that of rheumatic fever. A correct personal and family history would throw much light upon this point, but observers have differed widely in their estimates. Thus Lenden says: "Out of 63 cases distributed amongst 49 families, a family history of rheumatic fever is not recorded once, and in the previous histories of the patients themselves there were only two mentions of rheumatic fever." Goodhart and Still found a rheumatic history in 19 of 29 cases. In a series of 48 cases of erythema nodosum occurring in Bristol three had suffered from rheumatic fever, one from chorea, and one from "growing pains." A mitral regurgitant bruit was present in one who had suffered from rheumatic fever, also in the patient who had suffered from "growing pains," whilst a second who had suffered from rheumatic fever had a presystolic bruit. Six other patients, none of whom gave a previous history of rheumatism, were found to have cardiac bruits (five systolic and one presystolic). Three patients had bruits which were regarded as probably hæmic in origin. Thus there was the possibility of a rheumatic origin in 11 out of 48 cases (22·9 per cent.). I have no means of judging of the prevalence of rheumatism amongst the class of patients frequenting our hospitals but amongst public school boys rheumatic stigmata are found in just under 3 per cent. It should be mentioned here, however, that erythema nodosum has been observed in gonorrhœal rheumatism. I have seen one such case myself and Hermann records eight undoubted cases.[2] I have made a bacteriological examination of the blood in a severe case of erythema nodosum but found it sterile, and Fussell, who examined serum from artificial blisters in cases of erythema nodosum, found no specific organism.[3] Lenden, too, records a negative result.

From a review of the foregoing facts we find that the evidence of a relationship between erythema nodosum and rheumatism is of a conflicting nature. Whilst the age-incidence of the two diseases coincides there is a marked difference in their prevalence amongst the two sexes, and whilst valvular heart affections appear to be more common amongst sufferers from this disease than amongst the population generally, yet there is not that characteristic seasonal rise of autumnal incidence such as we see in acute rheumatism.

It now remains for us to examine whether the signs and symptoms of the two diseases are in any way similar.

Arthritis.—The arthritis of erythema nodosum may assume

[1] The Rheumatic Diseases (John Lane.)
[2] Münchener Medicinische Wochenschrift, Sept. 5th, 1905.
[3] Medical Record, May 12th, 1906.

various forms. The commonest form is pain in the joints without any objective redness or swelling and but slight tenderness on movement. This is strictly comparable to the arthritis of subacute rheumatism. In some cases, however, the joints present rather the appearance of gout. The swelling is hot, red, œlematous, and spreads beyond the immediate neighbourhood of the joint. It is, however, never extremely painful and in spite of the swelling patients can tolerate considerable movement. In yet other cases the joints are enlarged but there is not redness or œdema and the picture is that of gonorrhœal rheumatism or rheumatoid arthritis. The joint pains are not relieved by salicylates.

Temperature.—In the majority of cases of erythema nodosum seen in out-patient hospital practice the temperature is not raised. In acute cases, however, it may rise to 103° or 104°. The peculiar features of the pyrexia are that the rise may take place some days before arthritis or rash appears, and it may persist for three or four weeks in spite of the administration of salicylates. It often takes on an intermittent character.

The rash.—Erythema nodosum is not infrequently associated with other forms of erythema—papular and circinate—such as are observed sometimes in acute rheumatism.

Bronchitis frequently accompanies erythema nodosum. Less frequently it is seen in acute rheumatism.

General.—Lenden found phlyctenulæ in the eyes of 38 per cent. of his cases of erythema nodosum. Personally I have only recently looked for this symptom and up to the present have found it but very rarely. Phlyctenulæ have not been described as associated with any rheumatic conditions. Another point of difference between this disease and rheumatic fever is that whilst in the latter relapses and recurrences are of frequent occurrence, a relapse in erythema nodosum is rare and a second attack quite exceptional. I have recorded one case where a second attack occurred after an interval of more than 50 years.

Erythema nodosum is not characterised generally by any great constitutional disturbance but in severe cases the patient may be delirious, and one young woman sent into the Bristol General Hospital under my care as suffering from enteric fever was comatose for two days. In rheumatic fever it is quite exceptional to find delirium and coma apart from hyperpyrexia. I think that the delirium in erythema nodosum is often the result of the large doses of salicylate which are given, patients suffering from this disease, unlike rheumatic patients, being very intolerant of the drug. The long prodromal period is unlike the onset of rheumatic fever where the disease is seldom presaged by long-continued malaise. I have already referred to the fact that the salicylates do not relieve the joint pains or reduce the pyrexia of erythema nodosum.

Table showing Differences between Acute Rheumatism and Erythema Nodosum.

Rheumatism.	Erythema nodosum.
Age: Youth and adolescence.	Youth and adolescence.
Sex: Males.	Females.
Season: Autumn.	No seasonal variation.
History or signs of past rheumatism: Present.	Present, but less frequent.
Micrococci found.	Not found.
Joints: Tender and of characteristic appearance.	Seldom tender; appearance varied.
Prodromata: Uncommon and of brief duration.	Frequent; long continued.
Erythematous rashes.	Erythematous rashes.
Phlyctenulæ: Not found.	Occur in 38 per cent. of cases (Lenden).
Relapses and recurrences: Frequent.	Rare.
Endocarditis: In about 30 per cent. of cases.	In from 10 to 20 per cent. of cases.
Salicylates relieve.	No effect, but may excite delirium.

Recently a small boy came under my care suffering from erythema nodosum, and on inquiry I found that his sister had a similar attack three weeks previously. Lenden reports several such cases, but they do not point conclusively to the infective nature of the complaint, and indeed may indicate a common rheumatic taint. Cases of erythema nodosum occur sometimes in groups but no epidemic of the disease has ever been recorded.

The evidence which I have brought forward is, of course, too conflicting to enable us to say definitely whether we have in this condition merely a rheumatic symptom or a definite disease, but there is, in my opinion, much to support the view that erythema nodosum is a specific acute febrile disorder; that infection takes place through the tonsils or lungs; that after a prolonged incubation period and period of prodromal symptoms a specific rash appears; and that convalescence is accompanied by profound anæmia and malaise.

SPIRILLUM FEVER IN UGANDA.

BY R. U. MOFFAT, C.M.G., M.B., C.M. EDIN.,
LATE PRINCIPAL MEDICAL OFFICER OF UGANDA AND THE EAST AFRICAN PROTECTORATES.

IT has long been known that spirillum fever is a febrile disease caused by the presence of a species of spirochæta in the blood. It was first described under the name of "famine" or "relapsing" fever, but it has no essential connexion with famine and in its clinical course and its tendency to relapse it differs but in a slight degree from some other fevers. In the absence of a microscopic examination of the blood it is at times most difficult to make a diagnosis and reliance has to be placed on clinical symptoms and physical signs rather than on the temperature chart. As showing how an unsuitable name may mislead I might mention that ten years ago, in Uganda, I strongly suspected the presence of so-called relapsing fever on clinical grounds, but concluded that I was mistaken—first, because the disease I met with had no relation whatever to famine, and secondly, because in many cases the typical relapses did not take place and my temperature charts showed absolutely no resemblance to those portrayed as characteristic of the disease. The name "tick fever" is also objectionable, for though it has been shown by Dutton, Todd, and Koch that it is transmitted by ticks, it is quite possible that there may be other human diseases which are carried in like manner. To my mind it has been too hastily assumed that spirillum fever is identical with a disease called tick fever, which has long been known in the region of the Zambesi. If the accounts given of the latter are correct its clinical features are quite unlike those of spirillum fever as met with in Uganda, and if it should be proved that they are distinct diseases much confusion will result from this nomenclature. Already the term "tick fever" is often applied to a cattle disease which is transmitted by ticks, and it is not uncommon to hear spirillum fever referred to by the laity and by inexperienced members of the profession as though it were the same disease as that caused in cattle by a totally different organism. It seems preferable, therefore, to name the disease after the organism which causes it rather than after its transmitting agent or some feature which is by no means characteristic.

The disease is certainly not a new one in Uganda, though in times past it was probably often mistaken for malaria. There is no doubt, however, that it is becoming more prevalent and this is in great measure due to the increased traffic on the main roads, for it is in the tick-infected camps along these roads that infection is most commonly contracted. Owing to exigencies of food and water suitable camping-grounds are only to be found at certain places and thus caravans in a constant stream make use of these nightly. Once the ticks become infected it is easy to see how the disease is disseminated, and, indeed, the risk of infection is so great that it constitutes one of the most serious dangers and drawbacks to travel in Uganda at the present time.

Incubation period.—In the tick fever of the Zambesi it is stated that acute symptoms follow a few hours after the bite of a tick, but in spirillum fever I have never satisfied myself of a case in which the incubation period was less than seven days and in this particular, therefore, the two diseases differ materially. It would seem that in a susceptible subject the incubation period varies from seven to ten days, but it may be much longer as a result of a partial immunity either natural or acquired. There is no doubt that one attack does confer some measure of immunity and after a second this immunity probably becomes complete, at any rate for a time.

I had a case in a native which must either have been an instance of an unusually late relapse after six months or a

second infection. In another case the patient had a second attack a year after the first and in both these cases only one mild attack occurred in the second infection. A case in a European is also suggestive. In this instance the patient had spirillum fever with five relapses. After an interval of two and a half months he was exposed to the risk of fresh infection whilst travelling, but he had no definite remembrance of being bitten by ticks. A month later he had a sharp attack lasting three days; spirilla were found, but very scantily. After an interval of 19 days he had a relapse and this time also the parasites were very few in number. No further relapses took place and this irregular course and long period of incubation were no doubt due to a partial immunity acquired from the first infection. Among natives it is quite common for one single attack to occur without any relapses and the disease is so prevalent that it is not unreasonable to assume that such patients have had it before.

Number of relapses.—Owing to the long-drawn-out course of the disease it is difficult to keep patients, especially natives, under observation throughout the whole time. During the apyretic periods the general health may be such that patients can pursue their ordinary avocations and they naturally refuse to stay in hospital. Thus, although about 150 cases came under my observation during the last year I was in Uganda, I only obtained a fairly complete record in 30 of them, as follows: In 21 cases there was one initial attack without any relapse; in two cases there were two attacks (one initial and one relapse); in one case, three attacks (one initial and two relapses); in three cases, four attacks (one initial and three relapses); in two cases, five attacks (one initial and four relapses); and in one case, six attacks (one initial and five relapses). It is worth pointing out that in all the cases in which there were more than three attacks the patients belonged to a part of the country where the disease is much less common and consequently they were more likely to be susceptible. As a rule, in a susceptible subject the initial attack is followed by from three to five relapses. If only two relapses occur I am inclined to suspect a partial degree of immunity.

Period of intermission.—In the 30 cases to which reference has been made this varied as follows: Between the initial attack and the first relapse from five to nine days; between the first relapse and the second relapse, from five to eight days; between the second and third relapse, from five to nine days; between the third and fourth relapse, from eight to 36 days; and between the fourth and fifth relapse it was eight days in the one case.

In some cases, not included among the above, as they were only under observation for a short time, the first relapses occurred after apyretic periods of one, two, and three days. I am inclined to regard these as due to separate infections at different times. When a man is travelling he runs some risk of being bitten every night by infected ticks, and possibly re-infection after a short interval will result in the appearance of two batches of parasites of different ages and origins. This may account for the irregularity with which the earlier attacks sometimes follow one another. I am of opinion that if a period of ten days passes without a relapse none need be anticipated, but when once a single relapse has occurred the subsequent intervals are very irregular and tend to grow longer. The final relapse is usually a slight one, separated from the previous one by an interval of a fortnight or three weeks.

Duration of the attacks.—From three to four days represent the usual length of an attack, but the later ones tend to be shorter. Very often the last is characterised by a single rise of temperature, persisting for a few hours, and followed by a rapid fall to normal.

Presence of parasites.—In the earlier attacks parasites are generally more numerous than in the late ones, in which they may be excessively scarce. This does not always hold good, for at times they are found plentifully even in the late relapses. Towards the end of an attack they begin to disappear even before the temperature has fallen to normal. In one fatal case complicated with tuberculous meningitis spirilla were found even when there was no rise of temperature. In this instance the patient was admitted with a history of several days' acute illness, which from other evidence I judged to have been spirillum fever. His temperature was, however, normal, and the blood examination proved negative. He was kept in hospital for observation, and though for three days he had no rise of temperature his condition grew steadily worse, serious cerebral symptoms supervening. His blood was examined carefully each day but nothing was found. Finally, being convinced that he had had spirillum fever, I punctured his liver, which was enlarged, and in a smear of blood thus obtained I found spirilla in very large numbers. His finger-blood was then again examined and parasites were found, though not so numerous as in the liver-blood. The patient died on the next day and the post mortem examination revealed the fact that he had tuberculous meningitis. On the day that the parasites were found in the liver they had appeared, as was subsequently shown, in the peripheral circulation, but possibly they could have been demonstrated earlier in the liver and in an obscure case where the diagnosis was a matter of urgency, liver-puncture might be justifiable.

Symptoms.—A feeling of malaise, headache, and distaste for food generally precede an attack, coupled with pains in the back and limbs. A slight increase in temperature very soon shows itself and when the acute symptoms develop it rises rapidly. High temperatures are the rule, as will be seen from the following figures: In two of the 30 cases referred to above the maximum temperature was 106° F.; in 10 cases it was from 105° to 105·8°; in six it was from 104° to 104·8°; in seven it was from 103° to 103·8°; and in five it was 102° and under. During the course of an attack slight variations of a degree or two occur, not always in relation to the time of day, and, speaking generally, it may be said that the temperature fluctuates but little, and that a decided and sudden fall heralds the approaching termination of an attack. In most cases the temperature then falls quickly to normal, but sometimes a degree or a degree and a half persists for two or three days after the crisis. The skin is hot and dry and the face flushed. In one case in a European a profuse erythematous papular eruption appeared during his first attack and persisted for 48 hours. It covered the face, limbs, and whole body. Whether or not it had any connexion with the disease it is difficult to say, but possibly it occurs frequently, for a rash of this nature might be easily overlooked on a black skin.

Digestive system.—The appearance of the tongue is quite characteristic; it is moist, flabby, and deeply coated all over with white fur. Excessive vomiting is a prominent symptom among European patients, less so among natives. The bowels are, as a rule, constipated, unlike what is said to be the case in Zambesi tick fever, in which purging is spoken of as a marked symptom. In only two cases have I seen purging, and in both of these the patients had ankylostomiasis, which in itself would account for the bloody diarrhœa that was present. Slight jaundice is quite common. The liver and the spleen are generally enlarged and very tender; sometimes only the former is affected.

Respiratory system.—Quick breathing, slight cough, and diffuse pains in the chest are nearly always present, but in a certain proportion of cases these symptoms are intensified and accompanied by all the signs of lobar pneumonia. There are dulness over one or both bases, harsh tubular breathing, great pain, and thick blood-stained sputum. Some years ago I drew attention to the frequency in Uganda of a form of pneumonia which ran a very short course, and judging from my later experience I believe that these were merely examples of the pneumonic form of spirillum fever. The signs and symptoms disappear at once with the termination of the attack, with a rapidity which is most bewildering, if a diagnosis of pneumonia has been made from physical signs without reference to the blood. As a rule, these pneumonic attacks only occur with any intensity in the initial attack of spirillum fever. In the subsequent relapses there may only be the usual quick breathing and slight cough. Spirilla can be found in large numbers in the bloody sputum, and no doubt in these cases the lung vessels are choked with parasites.

Circulatory system.—During the pyrexia the pulse is very rapid; it may be 150 or more. Præcordial pain and oppression are often complained of and the heart muscle appears to suffer, for a tendency to slight attacks of syncope following exertion or excitement is very common. This persists for some days after the febrile period.

Nervous system.—There may be slight incoherence and excitement when the temperature is high, but delirium is not common. Persistent and excruciating headache is a constant feature and in some cases causes acute torture. It is accompanied by actual tenderness of the scalp, which

may be so great that the act of brushing the hair is unbearable. This headache persists sometimes for several days after the temperature has fallen to normal. Unilateral facial paralysis occasionally follows and may last for a few weeks.

Eye symptoms.—A curious condition affecting the eyes frequently occurs. Both eyes may be affected, simultaneously or in succession, but most frequently it is unilateral. It does not come on, as a rule, until after the first relapse and it may be much later. The symptoms consist of an injection of the deeper vessels of the sclera around the cornea, not unlike that seen in an ordinary iritis, but the iris looks quite clear and on cursory examination seems mobile. There are pain, lacrymation, and photophobia. I had long been familiar with this condition, which is very commonly seen, and in default of a better name was in the habit of calling it a scleritis. Eventually I observed that it was associated with spirillum fever and on more careful examination it was apparent that in spite of its deceptive appearance the iris was in reality affected. If atropine be instilled it may be observed that there are some adhesions, but these are rarely tight; in fact, they may be overlooked entirely unless the eye is watched during the time when the atropine is beginning to act. In mild cases the adhesions are so slight that in a very short time the dilatation is complete and uniform. The severer forms of the condition at once suggest iritis, and differ but little from the ordinary inflammatory form of that disease, but the important point to which I want to draw attention is that the mild type associated with a clear and apparently mobile iris is in reality an affection of that organ. On examining with the ophthalmoscope it will be noted that there is on the lens an abundant deposit of pigment, which in my experience occurs far more frequently in this disease than in an ordinary iritis. Often it occurs in the form of a complete ring with a central clear space corresponding to the original pupillary aperture. There is turbidity of the vitreous, so that it may be impossible to obtain a clear view of the fundus. The patient complains of a cloud before his eyes. This symptom persists for some weeks after all injection and other signs have passed off, and may be a source of great anxiety. A reassuring prognosis may, however, be given, for eventually the vision is completely restored by the disappearance of the pigmentary deposit. My own impression with regard to this affection is that it is not primarily a real inflammatory iritis, but that it is a condition resulting from thrombosis in the vessels of the ciliary body and iris, leading possibly to hæmorrhages into the vitreous. At times it does develop into an acute iritis and the adhesions which then form are of the usual kind. I have seen in a neglected case both pupils so firmly bound down that I had eventually to perform an iridectomy. As a rule, however, there seems to be no tendency towards the formation of tight adhesions, even if the condition is untreated, but in cases where no steps have been taken to insure dilatation of the pupil a large amount of pigment deposit may be expected, and to avoid this atropine should be instilled immediately any eye symptoms develop.

Diagnosis.—The spirochætæ can easily be found in fresh blood if present in large numbers, but a thin, evenly-spread film is quite unsuitable and in such they may be overlooked even when numerous. A film of moderate thickness is preferable, and in such the agglomerated masses of corpuscles will sometimes be seen vibrating from the movements of the contained parasites if the latter are sufficiently plentiful, and by careful focussing they may be seen semidetached wriggling in the surrounding serum. Being very refractile they are best seen with little light and appear as rapidly moving threads; sometimes they may be made out quite distinctly moving over and against the dark background of a thick layer of corpuscles. There is no doubt, however, that they are much more easily found in stained preparations. I have tried the two methods side by side in the same case and after a vain search through the fresh film I found them at once in the stained one. The quickest way is to take a fresh film and a dry one at the same time. A few minutes are devoted to the former and if the parasites are numerous they will at once be seen and the trouble of staining is avoided. If the search proves negative staining can be proceeded with. I have for the most part used Leishman's stain, which is simple and effective, and the parasites can easily be seen under a sixth. At times they are very sparse, necessitating a prolonged search through several slides. In the absence of means for making a blood examination it is not possible to make an absolutely definite diagnosis. A history of previous tick bites or of a possible exposure to such will afford strong suspicion as to the nature of the fever but in places where the disease is endemic there are many other biting things and people are so accustomed to their attacks that very often there will be no distinct remembrance of such. The disease with which it is most likely to be confused is malaria. In its onset it differs from it in the absence of any rigor, though it must be remembered that in the malignant tertian the rigor is represented often by a slight and evanescent feeling of chilliness, but otherwise the initial symptoms are very much alike, though, as a rule, they are more aggravated in spirillum fever, especially the headache and vomiting. In the greater number of cases of malaria there is no particular enlargement or tenderness about the liver, whereas in spirillum fever they are almost constant features. The splenic enlargement is common to both. The appearance of the tongue, with its thick, creamy-white deposit of fur, is quite unlike the dirty, dry tongue of malaria. As regards the temperature, there is usually in malaria a distinct tendency to intermission or, at any rate, a marked remission, such being generally preceded by profuse sweating. Spirillum fever attacks are sometimes so short that a sudden termination cannot be attributed to the influence of any remedy administered, and therefore the action of quinine on the temperature cannot be relied upon as a means of diagnosis, except to exclude malaria when the drug fails. The quick breathing and pains in the chest seen in spirillum fever do not occur in malaria. In the pneumonic form a diagnosis can only be made by watching the course of the disease, but it may be noted that the physical signs in the chest not only disappear but develop much more rapidly than they do in an ordinary pneumonia.

The eye symptoms point very strongly towards spirillum fever. I formerly believed that malarial iritis was a common complication of that disease, but since I began to depend for a diagnosis on blood examination I have not seen a case of iritis following malaria. Probably in my earlier cases the antecedent fever was spirillum.

Prognosis.—I have myself only seen one fatal case, already referred to, in which the actual cause of death was tuberculous meningitis. There is this to be said, that most of the cases which came under my notice were amongst able-bodied men and women, and in such the prognosis is good as regards recovery, though the attacks cause much acute suffering. Patients who have a series of relapses become very debilitated but there is no obvious anæmia. Accurate investigations in regard to this point are required. Children take the disease badly and some of the worst cases I have seen were among those under ten years of age. In very young children, old people, and other debilitated subjects the prognosis is probably less hopeful, especially if there is any cardiac weakness present. Pregnant women nearly always abort, and I know of one case in which this complication proved fatal.

Treatment.—So far I cannot speak with confidence in regard to any specific line of treatment. I tried arsenic hypodermically in a large number of my cases, but there is always a fallacy attending experiments in treatment in that the course of the disease may be modified by the presence of a partial immunity. My own impression is, however, that arsenic does tend to decrease the number of relapses. Acting on the assumption that syphilis is caused by the spirochæta pallida, I thought that possibly the antidote for that disease might prove effective in spirillum fever. Not only did it have no effect, but in one case a syphilitic patient who had been under my care for two months, and had taken mercury during the whole time, became infected with and developed spirillum fever which ran its usual course. For the actual attacks symptomatic treatment must be adopted A smart purge at the outset is beneficial. The headache is sometimes most intractable and may require the hypodermic administration of morphine, which tends also to allay the vomiting. Ordinary antipyretics are practically useless; with young children, in whom a high temperature is dangerous, the cold bath or sponging may relieve the urgency of the situation. Great care should be taken to avoid exertion or excitement, not only during the attack but for some days subsequently, as a fatal syncope might result from such. On the first sign of any complaint about the eyes atropine should be instilled and the pupil kept dilated.

Harley-street, W.

X RAYS IN THE TREATMENT OF CARCINOMA AND SARCOMA.[1]

BY CHISHOLM WILLIAMS, F.R.C.S. EDIN., &c.,
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IN 1905 I published a paper in THE LANCET, entitled "X Rays in the Treatment of Cancer,"[2] illustrating my remarks with a brief account of ten cases of undoubted carcinoma and sarcoma which had been brought to a successful issue by means of the rays. The earliest case that I have had to treat was sent to me in February, 1900. There was a deep epithelliomatous ulceration of the tongue in a man, aged 61 years. All one can say of that case is that the pain seemed lessened; the treatment, such as it was, was kept up for four months, during the whole of which time the patient steadily lost weight, on the average about a pound a week. From past experience of other early cases and my present knowledge I am led to believe that he did not have one-twentieth of the dose he should have had; one was so fearful at that time of inflammation of the mouth that the slightest reaction was considered the forerunner of that bugbear "dermatitis." The first 16 cases all succumbed within eight months of commencing treatment; this was most discouraging, but still alleviation of pain was produced in some in such a marked degree that it encouraged me to persist. The seventeenth patient, however, gave me much encouragement; he was a man, aged 59 years.[3] In August, 1900, I had what I consider another hopeful case in the person of a man, aged 38 years. In April, 1900, I removed a small tumour from the left parotid region, which had first been noticed in the preceding January. The incision healed by first intention and the Clinical Research Association reported on the growth that it was "a fibro-sarcoma with spindle cells." Four months after, in August, it had recurred in the shape of a lump of the size of a walnut, fairly hard and adherent to the skin and underlying tissues. The patient was treated to 13 applications of about five minutes each with a fairly soft tube and through a lead shield, the shield being of a thickness of one pound to the square foot. During the treatment a slight dermatitis was produced to the degree of dry exfoliation. This was quite unintentional, but the rapidity of the disappearance led me to think a great deal about the subject of the necessity or otherwise of a "reaction." There has been no recurrence during the past five and a half years. The next patient was a single woman, aged 42 years (sent by Dr. H. V. Griffiths). In June, 1899, the late Mr. Christopher Heath removed the left breast and glands in the axilla for scirrhous carcinoma. There was recurrence in the scar and armpit about 11 months after. A second operation was performed in March, 1900, and eight months later an ulcerated lump formed in the axilla discharging thin serous fluid tinged with blood. The Clinical Research Association reported on a minute portion, "consists of scirrhous carcinoma cells." X ray treatment was commenced in November, 1900, with daily exposures of ten minutes each sitting; a medium hard tube was used at a distance of four inches between glass and skin. After 16 applications a dermatitis was set up; it consisted of a deep erythematous blush over the whole of the left chest and upper arm. Around the scar for a few inches were a multitude of bullæ each of about the size of a millet seed. There was a cessation of treatment for about five weeks, during which time the patient went to the seaside. On her return the greater part of the area was deeply pigmented and about the middle some dry exfoliation was seen. She was treated for a further six weeks by two applications a week with a fairly hard tube at a distance of eight inches about five minutes each sitting. In all, 28 exposures were given. There has been no recurrence during the past four and a half years and the patient is still in excellent health.

Theories.—Several theories have been advanced to account for the action of the x rays on malignant growths. And in my opinion they all seem to point to a leucocytosis being ultimately produced in or around the growths. According to Legros x rays have a special selective action on new growths—the cell nuclei swell, do not stain well, the outlines of the cells become indistinct and fuse, the protoplasm becomes irregular, is invaded by leucocytes and absorbed, leaving a network of dense connective tissues containing vessels with thickened walls from endo- and periarteritis due to the rays. No theory at the present time is entirely satisfactory, but it is encouraging to know that the action of the x rays on the blood is gradually taking shape. Several of our members are obtaining excellent results in leucocythemia and allied conditions which may solve our difficulties regarding the theory of the action of x rays not only in cancer but in other divers diseases.

Reaction.—Reaction in the part to be treated is a vexed question among some electro-therapeutists. For my part, I am convinced from practical experience that some sort of reaction is absolutely necessary. It may not always be seen and requires much watchfulness on the part of the operator. My worst failures have been those in which no visible reaction could be seen either of the skin or, more important, of the lump itself. The reaction may take a visible form of redness in the mass if protruding through the skin or round the edges if an ulcer, swelling or hardness of the tumour, increased heat, perhaps in some cases increased pain or other vague undefined feelings to the patients. If a discharge be present it soon takes on a more healthy action both as regards appearance and odour. Frequently I have seen masses break down and slough away. Sometimes there is pent-up pus, with elevation of temperature and night sweats. In one case of sarcoma of the side of the neck the growth became after one application of new soft tube, 20 minutes at three inches, almost black, and the turgescence of the overlying blood-vessels was very great. After the sixth dose the mass was fluctuating; it burst and discharged pus with large pieces of greenish fœtid slough which microscopically showed intense degeneration (wash-leather slough). In some growths the reaction may affect the patient in a general way. Symptoms such as slight increase of bodily heat at night, sweatings, headache, malaise, thirst, and loss of appetite may be observed. This generally yields to a cessation of treatment for some time. This is most seen in large growths which are not ulcerated and have no exits for the products of disintegration, the patient having to absorb them and get rid of them by the usual channels.

Pre-operative and post-operative treatment.—If the theories mentioned are proved to be correct then it would seem to point to the advisability of using the x rays in all cases prior to operation, more especially to the hard and usually slower growing varieties. The rays might be used with advantage during that period, sometimes weeks, during which the patient is being prepared for operation. The mildest dosage should be used and the effects on the growth or glands carefully noted. It has been objected to by some that x rays should not be used as a pre-operative measure on the following grounds: that (1) the agent has not yet been proved curative, and (2) the serious risk of extension of the disease to inaccessible glands or other regions by metastasis during the period of trial. In answer to the first objection I am of opinion that the rays have been proved curative to a certain degree, not as yet absolute it is true. To the second objection I would only advise their employment at present to a few weeks at the most prior to the operation. In inoperable and recurrent cases the rays should always be used. Post-operative treatment may be used directly the scar is healed or even before that time if it shows the slightest appearance of being sluggish in the healing. A nodule of the size of a pea should have immediate treatment whether in the scar or not; this requires for its proper fulfilment constant observation by the medical attendant. In recurrent cases after operation the less "recurrence" there is to treat the easier it will be for the application of the rays to effect a favourable result. The best cases are those where the disease is strictly local. Nevertheless, the rays have given such promise of well-doing that in the present state of our knowledge it would be unwise to refuse treatment to any case on the score of extensiveness of growth. Again, we must always remember that pain in any case may be relieved in a remarkable manner. Also, the mere fact that something is being attempted for the patients has often proved to have extraordinary effect on the minds and very materially assists them to bear their heavy burden.

Causes of failure to arrest the progress of the growth.—Failure may be attributed to several things. Amongst the most important will probably be inexperience on the part of the medical man; the vagaries of the apparatus; too mild or

[1] Abstract of a paper read before the British Electro-Therapeutic Society, March 23rd, 1906.
[2] THE LANCET, Nov. 4th, 1905, p. 1318.
[3] THE LANCET, Nov. 4th, 1905, p. 1320.

too energetic treatment; the case being hopeless on account of either the growth being too diffuse, or having become disseminated throughout the internal organs of the body; or the patient's general vitality having been lowered by previous suffering. Pain from the treatment is never severe but when added to the pain of the growth the total may be considerable; as a rule after a few applications the pain is very materially relieved; I have had many cases where opiates have been entirely dispensed with shortly after commencing treatment. In a large mass if the central parts show a tendency to break down into pus without an efficient exit the pain may be considerable. Hot fomentations in suitable cases seem to effect much good. Violet leaves being still the fashion they may be made into poultices or the infusion used as fomentations. Non-perseverance on the part of the patient may arise either from getting a measure of relief which frequently passes our most sanguine expectations and which the patient believes to be permanent, or from the patient giving up all hope of a cure owing to the somewhat tedious course of the treatment. Care must be taken that the part be transparent to the x rays. I was once consulted as to the failure of x rays in a case of fungating sarcoma. It had had two applications a week of x rays for over nine months, and although the tumour had diminished slightly the first two months, it had then rapidly renewed its growth. I found the lump of about the size and shape of a cocoanut, of ivory whiteness, consisting of over half an inch of hard white china-like material which was found to be due to the large amount of dusting powder used; this had caked and was quite opaque to x rays. The powder contained a very large percentage of zinc oxide. The tube was the original one and gave off a veritable shower of sparks; the spark gap was 12 inches and the current sparked during the whole application. A lay relative had applied the rays and did not consider all was right unless this phenomenon was observed. That was an example of too mild treatment. As an instance of too energetic treatment, in one patient of a very low vitality who suffered from a large inoperable sarcoma involving the whole of the contents and walls of one orbital cavity the treatment which it received for the first six weeks quickly began to shrink it up, then, in spite of my efforts, commenced to enlarge; a new tube was used, and the dose doubled, but unfortunately the whole part sloughed out. Uncontrollable hæmorrhage ensued, which in a few days proved fatal.

Dermatitis; preventive measures.—Considering the prolonged treatment necessary in this class of conditions it is not surprising if we sometimes meet with a dermatitis. In my earlier cases I frequently unwittingly produced a mild dermatitis; we knew less about preventive measures in those days but I am bound to say that some of my best results have had a dermatitis to the extent of dry exfoliation or even slight bullæ. Except in cases where the growth is strictly local, such as epithelioma of the lip, I think it is best not to screen the surrounding parts, so that the rays may reach scattered deposits in the remote tissues. From the knowledge recently gained in the treatment of ringworm by Sabaraud's method it is easy so to keep the tubes in a condition that few irritative rays are given off, and although this may unduly prolong the treatment it seems at the present moment to be the best course to pursue. At first I tried a number of substances—aluminium foil earthed, various thicknesses of soft stuffs, clothing, vaseline, and other substances too numerous to mention. My almost immunity from burns to the patient I put down chiefly to the use of medium to hard tubes. Nowadays with the apparatus employed a dermatitis to any extent should be extremely rare and the treatment thereby much curtailed.

Standard dosage.—Would that we could formulate a standard dose as we can in the case of some drugs. At present this appears impossible, but we can only hope that in the near future it will become possible to give an exposure that will produce a definite visible effect. At present we can only compare our work in a very general way, owing chiefly to the divers kind of apparatus in use. The idiosyncrasy of the patient is a factor that cannot be neglected when considering the dosage. My observations lead me to think that fair people burn more quickly than dark and that dark people pigment the more easily. Still, it may prove that with increased experience and knowledge of the behaviour of the growth to the x rays and with more regulateable apparatus the idiosyncrasy of the patient will in proportion diminish. With my apparatus as at present arranged one usually finds that a dose of from 3000 to 5000 Benoist units is given at each sitting and renewed or increased according to the effect produced. When all is said on behalf of dosage and its measurement, actual experience of the operator is of the first and final importance.

That the pain of malignancy can be much alleviated by x ray treatment is common knowledge among those who have had much experience in this form of treatment. The pain that one sometimes notices in cases where it is obviously due to the dragging or contraction of the scar does not seem to yield so readily as "growth" pain. Pain produced by pent-up discharge or the disintegration and liquefaction of the malignant cells can only be relieved by the patient's absorptive powers or by an exit naturally or artificially produced. In uterine cases it is important carefully to distinguish between the period pain and the pain of the growth whilst under treatment. One woman with a cauliflower excrescence of the cervix had had no period for over 14 months prior to the commencement of treatment. In seven weeks with daily applications the growth had disappeared but the whole of the contents of the pelvis were lumpy and matted together. To my great surprise the pain, which had decreased to almost *nil*, came back with renewed vigour, although the cervix looked perfectly healthy and the excretion was perfectly normal. After eight days I suspended treatment as I thought that the x rays were possibly the cause. The patient returned in a few days with the cheerful intelligence that she was suffering from a copious period, on the cessation of which all pain vanished. Her periods have been most regular since and the parts are gradually assuming their normal condition. There has been no return during the past two years.

Glands.—In the majority of cases that I have had to treat where there was much glandular enlargement it is a curious fact to note that the glands actually infected became of stony hardness before they disappeared. One has so often seen the glands depart in such cases that I am led to the conclusion that frequently they are only affected with a simple *inflammation* from irritation of the secretions of the original growth and not from actual *infection*. In one patient who had the glands enlarged many months after the breast had been removed and the resulting scar was white and perfect, these were undoubtedly infected, but readily disappeared with a few months' treatment, though this patient succumbed to a recufrence 11 months after, during which time no x rays were applied. In another case, that of a woman, aged 48 years, who had a primary carcinoma of the left mamma, quite two-thirds of the gland was involved and there were many lumps in the axilla which practically filled that space. She had refused any operative measure. Under x rays, administered three times a week for over four months, the lumps cleared up and the breast contained a hard tumour much less than half the whole gland; this was then removed and was proved to be an ordinary scirrhous carcinoma of a very fibroid character. This patient has been since October, 1903, and is at the present time, in excellent health.

I well remember the day on which the evening papers announced Roentgen's brilliant discovery. How at first, with a conservatism natural to our profession, we treated it as an exceptionally smart piece of yellow journalism, but within a week we, imperfectly it is true, observed the shadow of the bones in the fingers of our own hand, and our scepticism was turned to astonishment. Proceeding forward we thought it astonishing that some little superficial cancers disappeared, and had not our scepticism received so great a shock about the diagnostic power of the rays we should have been even more sceptical. But the fact remains that most of the little growths can be alleviated by x ray treatment. Who can say how soon in the future with increased knowledge of cancer and of the rays the alleviation of the larger growths may not be attained.

Bedford-square, W.C.

MEDICAL MAGISTRATE. — Mr. Charles Cecil Bullmore, L.R.C.P.&S Edin., L.F.P.S. Glasg., has been added to the commission of the peace for the county of Cornwall.

DEATH OF A CENTENARIAN.—Mrs. Elizabeth Cattle, who celebrated the 103rd anniversary of her birthday on Nov. 24th, 1906, died on Dec. 29th in York, of which city she was a native. About three years ago, on reaching the age of 100 years, she received a sympathetic communication from Queen Alexandra.

TWO CASES OF TRAUMATIC RUPTURE OF THE KIDNEY, IN ONE OF WHICH A SINGLE KIDNEY EXISTED.

BY JAMES GRANT ANDREW, M.C., M.B. GLASG., F.F.P.S. GLASG.,

SURGEON TO THE VICTORIA INFIRMARY, GLASGOW.

CASE 1.—The patient, a boy, aged 14 years, was admitted to the Victoria Infirmary, Glasgow, on June 5th, 1906, as an urgent case, on the recommendation of Dr. Andrew Wauchope. The following history is obtained from Dr. D. L. Graham's report. 11 days previously the patient fell into a cellar. No very distinct account of how he fell could be obtained, as the boy himself did not remember the incident at all clearly. His father was of opinion that he somehow came against the edge of a stair, his abdomen and right lumbar region apparently receiving the brunt of the impact. Two of the boy's companions assisted him home and on his arrival there he looked white and felt faint and complained very much of severe abdominal pain. Shortly after getting home he vomited freely and this continued for several days. The vomit, according to his father, contained blood quite distinctly up to two days previously, when the retching and vomiting ceased and he seemed to be decidedly better. On the day before admission, however, vomiting recurred and generally the boy looked very ill. All along he had complained of pain in his abdomen and in the right loin more particularly. From the day of the accident there had been a considerable quantity of blood present in the urine, and on the previous day there were several large clots present in it. For the first two days after the accident the quantity of urine passed was very small but he was not catheterised. Since then the daily amount passed had been fairly normal. He had no frequency but the pain during micturition, especially on the day when the clots were passed, had been very severe. The motions had been quite normal in colour and there had not been at any time bright red blood present or any melæna.

On admission the patient was very blanched. His pulse was 82, soft and dicrotic, but regular. He complained much of pain on the right side but was not restless or sick, and there was nothing to indicate any active hæmorrhage. Examination of the abdomen showed a very distinct bulging in the right lumbar region, a bluish discolouration appearing through the skin. The swelling extended right forward to the middle line and backwards a short distance from the spine and filled up the whole interval between the lower true ribs and the crest of the ilium. It extended also down into the right iliac region, but did not completely fill up this region, a small interval above Poupart's ligament being clear to percussion; the swelling was extremely tender to touch and fluctuant. The left side of the abdomen was soft to palpation and not tender and there was no evidence of free fluid in the abdominal cavity. There was about one and a half inches of liver dulness in the nipple line and the tumour dulness was not continuous with it. The urine contained a considerable quantity of blood diffused through it and albumen but no pus. He was fairly quiet in the early part of the evening and drank freely on account of his thirst. About 10 P.M. he began to complain more of the pain in his side and his temperature dropped two degrees. He did not complain of faintness or dimness of vision, nor did his pulse rise beyond 97, but he looked as if there had been some fresh hæmorrhage. During the first four hours after admission no vomiting occurred, but between 10 and 11 P.M. he had vomited very freely. There was no blood in the vomit. His bowels moved without any aperient. The motion was hard and of natural colour, but there was a distinct amount of blood clotted round the fæcal masses. Within the last hour he had developed a slight cough evidently due to upward pressure on the lung. On June 6th his condition was slightly better, the pulse having dropped slightly. There was, however, a distinct increase in the size of the swelling in the loin and as he was suffering very severe pain he was operated on at once.

Operation.—I made an incision in the lumbar region and divided the muscles down to the perirenal fat; this was separated off with the finger, some blood clot was removed, and a large dark encapsuled swelling presented itself. On separating this all round it was seen that the swelling was within the kidney, the capsule being enormously distended owing to the effused blood in the kidney substance. A small rent in the capsule was enlarged and the contents of the swelling, blood clots and a slight amount of urine, were evacuated. Iodoform gauze was then packed down into the cavity alongside a thick tube. There was a great deal of bleeding, and stuffing was packed tightly into the wound down to the kidney. The tube was led into a bottle and the kidney was drained. The cavity was very large and it was feared that there was a great deal of disorganisation of kidney substance.

In the evening the patient's pulse remained quick and he complained greatly of thirst but during the night was less restless. The wound was redressed at 11 P.M. He had four saline injections per rectum during the night. On June 7th there was slight improvement in the pulse and temperature. Urine was passed both by the tube and in the natural way and it contained a large amount of blood. On the 14th urine was draining freely into the bottle from the lumbar wound. For the last day and a half he had not passed any urine in the ordinary way; a catheter was passed on the previous day but only a few drachms were drawn off and the bladder was not distended. The urine drawn off was quite clear and did not contain any blood. The temperature had been elevated for several nights but the wound looked fairly well and he was altogether much better. On the 22nd the tube was left out of the lumbar wound. There was considerable drainage on to the dressing. The amount of urine passed naturally was now quite normal. On the 30th the lateral wound was healing up.

On July 9th the urine looked clearer; it contained pus, however, in small quantity, but no blood. On the 30th only a slight discharge of urine could be expressed from the wound. The patient was now passing naturally a fair quantity of urine; pus was still present in small amount

On August 9th the urine was still improving; there was a slight haze of albumen. The temperature showed a tendency to rise if the sinus was not opened up daily. On the 16th the temperature was slightly raised at night again; no pus was present in the discharge and very little in the urine. On the 30th, for the past few days the temperature had been raised and it was feared that there might be some collection or that some ulceration was in progress in the disorganised organ for some blood reappeared in the urine, but the boy did not otherwise complain. On the 31st he had complained very much all night of pain in the old site. It was evident from his appearance that a fresh hæmorrhage was taking place from the kindey. Examination of the right side showed that there was a swelling present passing forwards towards the middle line very much as on admission. The swelling was very tender and the abdominal wall was rigid on the right side. The rest of the abdomen was clear and there was no fluid within the peritoneum.

On Sept. 1st I performed another operation. Laparotomy by a median incision was done and the kidney region was examined. No kidney on the left side could be discovered; it was therefore out of the question to remove the supposed single kidney on the right side. The abdominal wound was then closed and the original incision on the right side opened afresh. There was a great deal of disorganised blood clot and blood removed and it was found that this part of the kidney was much injured. The cavity was cleared out, flushed, and a large drainage-tube inserted with packing alongside. Later the patient was transfused. At 11 P.M. there was no further evidence of hæmorrhage and urine had been passed in fair quantity both naturally and by the tube. On the 2nd he was very restless and had vomited repeatedly. On redressing the wound no change was noted in the abdominal condition. On the 3rd the amount of urine passed had greatly diminished and vomiting was incessant. The boy died on this day.

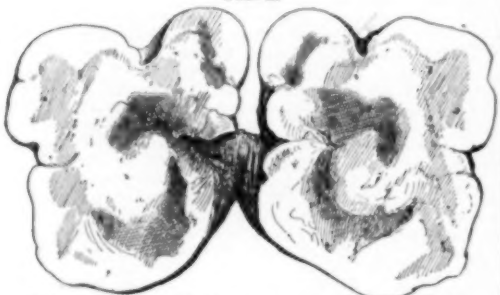
Permission was granted only to remove the kidney. Dr. John Anderson, pathologist to the infirmary, describes the organ thus: "The specimen is an example of the fusion of kidneys on the right side. There was an absence of the kidney on the left side, and the solitary organ, which was situated in the right lumbar and right iliac regions, presented a trilobed appearance externally, with larger upper and middle parts and a smaller lobe at the lower pole. The organ weighed fully eight ounces, free from capsule, and its measurements are 12 cm. vertically, 12 cm. transversely at its mesial part, and 4 5 and 6 cm. at the poles. There were two indistinct hila recognised, a smaller lower one separated by a bridge of tissue

from the upper, and the pelvis showed a similar indistinct separation. The vessels and ureters have been cut off too close to the kidney for recognition but in the body two ureters were recognised; the one coming from the part of the kidney which represented the left organ was smaller in size and narrowed towards its termination in the bladder; whether it was functional or not was not determined on account of the restricted examination permitted. The rupture of the organ had taken place at the area of fusion of the two parts and extended across the kidney substance into the pelvis and on cut section the extravasation of blood and discolouration is seen extending for some distance into the medullary portion of the organ."

Remarks.—This case presents some features of unusual interest. A traumatic rupture of the kidney is perhaps not so uncommon an accident as to warrant any special notice or to be in itself a particularly grave condition, but when the rupture involves the only kidney the patient possesses it makes the accident an extremely rare one, if not unique, and adds considerably to the gravity of the prognosis. At the first operation, when large blood clots were removed and drainage by the loin was established, it struck us that the kidney was a very large one, but beyond this passing observation nothing more was thought about it until a few days afterwards Dr. Graham, the house surgeon at that time, remarked that the patient had passed no urine per urethram for the last day and a half and that he had catheterised him and found only a few drachms in the bladder. We estimated the quantity coming by the tube and that by the urethra and found the quantity not far short of normal. As the boy was not suffering at that time from symptoms of suppression and the urine drawn off by the catheter did not differ in character from that passed by the tube the question occurred to us whether we were not dealing with a case of single kidney, more particularly as we had under our care on a former occasion[1] a case of a single hydronephrotic kidney which resembled in some respects, in shape and in size, the tumour in the present case. As the amount of urine passed by the urethra increased and that passed by the sinus in the loin diminished, the fact of the existence of a single kidney or otherwise in this case possessed no more than a scientific interest.

The occurrence of the second hæmorrhage with its disastrous consequence is difficult to explain. The boy in his general condition had greatly improved and we were hopeful that in time the sinus in the loin would close and the kidney, if damaged, be able to perform in part at least its function. The evening rise in the temperature was disquieting and though no collection was present it meant that some ulceration was probably taking place in the kidney substance. Be that as it may, a secondary hæmorrhage occurred and we found the kidney as large, as distended, and as tender as it was on the day of

FIG. 1.



Median section of single kidney (reduced). The darkly shaded portions indicate the extent of the hæmorrhage.

his admission. The question then as to the existence of a single kidney became more than a scientific one; it became a practical one, for, if he had two kidneys, removal of the affected one might be considered a justifiable and possible line of treatment. We were convinced, however, that he had only one kidney, or a horse-shoe kidney, but to make sure we made a small opening in the middle line and found, as suspected, no kidney on the left side. As mentioned in the report the old wound was opened the blood clot was removed, and the cavity was packed and drained. The kidney was even more disorganised than on the previous occasion and the prospects of much secreting substance being left were by no means bright. Two days afterwards the boy died, I believe, from uræmic poisoning. The illustrations bring out the

FIG. 2.

Single kidney, external aspect (reduced). Indication of fusion well marked.

points mentioned in Dr. Anderson's report—the lobulation, the apparent fusion of two kidneys, and the seat of the rupture. The diagnosis of single kidney in this case rested on two facts: (1) the absence of urine or only a few drachms in the bladder for at least two days without there being any evidence of suppression; and (2) no kidney could be felt on the left side by palpation under an anæsthetic; in this lad's case, if present, it could have been palpated.

It is a striking instance of hard luck or, to put it differently, a strange providence that this boy should rupture his only kidney. Its large size would increase its liability to injury and, if injured, increase, by its excessive vascularity, the amount of damage done.

CASE 2.—In striking contrast to, and yet resembling in some respects, the case just narrated is the following. A boy, aged seven years, was admitted to the Victoria Infirmary on April 28th, 1906, having sustained injury through a fall. From Dr. Graham's report the following history is obtained. On April 27th the child fell from a wall, seven feet high, alighting, so far as could be made out, on the edge of a pail, his right lumbar region sustaining most of the injury. He was carried home and put to bed and on the 28th he was seen by Dr. W. Wm. Walker of Pollokshaws who ordered his removal here. Apparently his urgent symptoms only developed during the night after he was some time in bed. He complained much of pain down the right side and vomited several times and as a result he slept very little during the night. About 15 ounces of urine were passed which contained a considerable quantity of blood freely intermixed with the urine.

On admission the patient's pulse was 120 and his temperature was 99·8° F. He looked drowsy and complained very much of pain, especially on being handled. The abdomen was quite freely moveable on respiration. Tenderness and rigidity were present in the right lumbar region and especially so round towards the spine and over the site of the two floating ribs. There were some effusion and swelling here which to a slight extent passed round to the front of the abdomen. No crepitus could be made out over the ribs but they could not be distinctly felt on account of the pain. The left side was quite soft to palpation. The urine was smoky in colour; it contained a small amount of blood and some albumin, but no pus. No vomiting had taken place since admission.

On April 29th the boy was still drowsy. The pupils were equal and active. The abdomen was slightly more distended than it was on the previous night but the liver dulness could be made out. There was no evidence of any fluid in the peritoneal cavity. Pain was still located on the right side. There was no vomiting. On the 30th the abdomen was still tender on the right side; rigidity was not so marked. The patient was very restless at night. He was catheterised at midnight, as he had not passed urine for about 15 hours. The urine was fairly clear but contained a slight amount of blood when examined.

On May 1st the boy's appearance was better. The quantity of urine passed was small. The right side was still very tender. No fluctuation could be made out. The bowels

[1] Transactions of the Glasgow Pathological and Clinical Society, vol. x., p. 56.

were moved freely by oil. On the 13th he was very much better. On the 20th he occasionally complained of pain still on the right side. On the 23rd a distinct swelling had developed in the right lumbar region. It was fairly large and fluctuant, and slightly moveable. There was no redness of the skin, but some tenderness was present.

An operation was performed by me on May 26th. The swelling was punctured and was found to contain clear fluid which resembled urine. An incision was then made in the lumbar region and the muscular wall was divided down to the kidney. This was defined, and it was noted that there had been a laceration of the kidney, which had cicatrised. A tube was inserted, and the wound was stitched.

On May 30th the patient was very well. There was a considerable discharge of clear fluid from the wound. On June 7th the tube was left out. On the 14th there was no discharge of urine from the wound. On the 20th the boy was dismissed well to the convalescent home, the urine being quite normal.

Remarks.—These two cases resemble each other in the following points. (1) Both patients fell on the loin; (2) the injury in both cases was direct—one a fall on the edge of a stair, the other on the edge of a pail; (3) in both blood was present in the urine immediately after the accident; (4) in both the ruptured kidney could be felt by palpation, in each case extending round the abdomen towards the umbilicus and tender to touch; and (5) in both the swelling was clearly behind the peritoneum.

Glasgow.

ON A NEW TEST FOR SUGAR.

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AT a meeting of the Cambridge Philosophical Society on Nov. 26th, 1906, I described a new method for the detection of sugars. The test is one of great delicacy, and though its application requires some manipulative skill it possesses certain advantages over many of those which have hitherto been employed. It appeared at that time that the test was only applicable to carbohydrates in the solid form, but on further investigation I have found that with a slight modification it may be used for the detection of sugars in aqueous solution. Even in this modified form the reaction is sufficiently delicate to detect 0·2 per cent. or less of sugar in urine or in similar liquids.

The reaction depends upon the fact that all carbohydrates of the hexose, or polyhexose, type (such as dextrose, lævulose, cane sugar, milk sugar, or maltose) yield a certain amount of bromo-methyl-furfural, $CH_2Br-C_4H_2O-CHO$, when acted upon by hydrobromic acid under appropriate conditions;[1] and further, that the latter substance reacts with malonic ester in presence of alkalis, giving rise to a product the solutions of which exhibit a powerful blue fluorescence.

The conditions most favourable for the action of hydrobromic acid are obtained when phosphorus tribromide is dissolved in some inert solvent, such as toluene, and the solution is heated with the carbohydrate in presence of water; excess of water, however, must be avoided.

For the examination of urine the test is most conveniently applied in the following way. Pour a small quantity (four or five cubic centimetres) of the liquid on to an excess of solid anhydrous calcium chloride so as to form a semi-solid, or pasty, mass. Add to this ten cubic centimetres of toluene containing two or three drops of phosphorus tribromide and then carefully boil the mixture for a few minutes, bearing in mind the inflammable nature of toluene. Pour off the toluene solution and, after cooling, add to it about one cubic centimetre of malonic ester and a little alcohol. On neutralising the mixture by adding alcoholic potash, drop by drop, a characteristic pink colour will usually be observed. The mixture is now considerably diluted with alcohol and a few drops of water when, if sugar was originally present, the solution will exhibit a beautiful blue fluorescence.

The reaction appears to be a specific one for carbohydrates which contain six or more atoms of carbon in the molecule and may therefore be used to distinguish hexoses from pentoses or other lower sugars.

Cambridge.

[1] Transactions of the Chemical Society, 1898, p. 554.

OBSERVATIONS ON THE INDUCTION OF AUTO-VACCINATION IN TUBERCULOSIS AND OTHER CHRONIC GLANDULAR INFECTIONS BY THE X RAYS

(AS REVEALED BY THE OPSONIC CHART OF THE FORMER).

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MY attention was drawn last August to Dr. Peter Paterson's article which appeared in THE LANCET of August 25th, 1906, pp. 493, 494, entitled "Some Observations on the Effect of Sterile Caseous Matter in the Treatment of Tuberculous Disease." Dr. Paterson succeeded in isolating an immunising agent from the chronically diseased tuberculous lymphatic glands, with which he vaccinated six patients suffering from extensive tuberculous disease; these cases were such that the application of the new tuberculin, or T.R. of Koch, even in minimal doses was obviously contra-indicated, owing to the unavoidable successive auto-inoculations in generalised tuberculous lesions. His results were gratifying without exception. They show three things: (1) that positive phases of opsonic indices were easily obtained without negative phases (though here the possibility of an elision of the negative phase or of its duration being so brief as to escape observation must be borne in mind); (2) that each rise in the positive phase was accompanied by minute elevation of temperature, this serving as a sufficient and reliable guide to dosage; and finally (3) that the normal index, which was soon reached, was easily maintained within normal limits without great or rapid variations. These three facts make it highly probable that this immunising agent or locally elaborated *vaccine* is an ideal one, and one which it would not be possible to prepare in the laboratory any more than it would be possible to prepare the vaccine for variola artificially.

In the light of such knowledge it would seem that there is a very marked and important difference between the opsonic response evoked by vaccination with this product, which is elaborated locally *in vivo*, and that evoked by new tuberculin, or T.R. of Koch, which, with all deference to Professor Koch, is not a metabolic defensive product, and therefore not a true vaccine, while that of Edward Jenner has so far stood alone as being a true vaccine, being obtained vicariously by virtue of the action of the very minute lymphatic glands in the vicinity of the inoculated area prior to the processes of complete encapsulation. It is conceivable that the ideal vaccine to the tubercle bacillus will be one elaborated *in vivo*, and obtained from the sterile accretion produced by the phagocyted tubercle bacilli found in the glandular focus of an otherwise untainted animal which has been inoculated by a certain otherwise sterile strain of the human tubercle bacillus. The definition of a true vaccine would therefore be that it is a metabolic lymphatic glandular product, elaborated in the organism in consequence of a completed final defensive reaction. This would follow upon any organic infectious inoculation, produced either accidentally or intentionally.

From what follows we may reasonably infer that in tuberculosis varying degrees of infection occur accidentally, *invariably producing both immediate and remote effects* among those whose conditions of environment (as in the case of Europeans), constantly expose them to this infection, some more and some less. Where these conditions of environment are lacking infections of this disease do not occur, as in the case of negroes and aborigines in their native haunts. On the occurrence of slight degrees of infection the preliminary defensive mechanisms suffice to destroy it, without necessarily effecting any appreciable change in the individual's health. The local and systemic effects may be so slight as to escape observation; but *at the same time, by virtue of a definite opsonic response having been evoked, a slight degree of resistance is conferred* on the individual. Periodic repetitions of such degrees of infection suffice thus to produce an acquired partial immunity—as for example, in Europeans, which infection is not the case with negroes and aborigines, since the disease does not exist amongst them in their native haunts. Thus it follows that the conditions of environment conducing to the acquirement of a natural immunity also conduce to the acquirement of the disease itself. The severity of the disease depends on

the extent of immunity obtained prior to infection and upon the degree of infection when it occurs. I might point out incidentally that the definite characteristics of both the degree of resistance and that of the opsonic defect would be transmitted to succeeding generations according to the Mendelian law of transmission.

In the light of present clinical knowledge I shall now briefly sketch the more important defensive mechanisms which are brought into play on the occurrence of an unmixed tuberculous infection of moderate severity in the case of an otherwise healthy (?) adult European. The preliminary defensive mechanisms having been overcome, we have to consider, then, the extent and virulence of the infection on the one hand, and the vital resistance of the individual on the other, whether this be acquired or inherited. The site of infection may be on the mucous membrane of the floor of the buccal cavity or in the region of the tonsils, where the accidental presence of other bacilli among the normal flora of the buccal cavity influences the tubercle bacilli favourably or unfavourably, according as the accidental bacilli are certain pneumococci or streptococci which are congenial to the tubercle bacillus, or others which are not. It is well known in regard to this point that the tetanus bacillus, which is normally anaerobic, will nevertheless proliferate easily under aerobic conditions on a culture medium in company with several common saprophytic organisms, such as the ordinary bacteria of decomposition found in a foul lacerated wound. After adapting themselves to their altered environments in such localities and surviving a definite period of incubation the tubercle bacilli tend to undermine the adjacent structures and to move from their extra-corporeal position to other positions which are intra-corporeal. On the one hand, the opsonins present begin to be expended and a further response is evoked; on the other hand, the mechanisms of phagocytosis and segregation are now simultaneously brought into play by virtue of a leucocytosis in which the lymphatic system is mainly concerned. There are evidences of a hyperæmia at the site of infection, elevation of the normal bodily temperature, and a fall and rise of the opsonic index, according to the fundamental laws laid down by Sir A. E. Wright. A migration of at least two types of leucocytes takes place in the vicinity of the infection—one of these being concerned with the formation of neoplastic encapsulating tissue for the purpose of segregation and the other type with the carrying on of phagocytosis. With reference to this action it is conceivable that the phagocytes deal with the more advanced and scattered bacilli, especially those that are opsonised, while the other type surround those that are massed together so as to form the tubercles or localised foci and keep them inclosed pending the development of further opsonins and incitor elements.

The expenditure and generation of opsonins depends (1) upon the regulation and degree of mobility of the invading forces; (2) upon the rate and efficiency of the segregations; and (3) upon their location, whether they are in or near to highly vascular tissues (where they are more accessible to the leucocytes) or in remote, less vascularised tissues. The tissues of the adult, being more organised and dense, offer a greater obstacle to the migration of leucocytes in unwonted directions, but the less organised tender tissues of the infant are more permeable. Phagocytosis having been completely effected after opsonisation, and encapsulation established, the acute stage of the malady is tided over and the more subtle, chronic stage of convalescence sets in. Where the encapsulating tissues contain opsonised bacilli only these bacilli probably undergo degeneration and die and if the encapsulating tissues be not too dense to permit of the slow liberation and diffusion of their toxins a stimulus to incitor elements is produced and the phagocytes are incited to penetrate those foci from which they do not emerge again, but the contents of which they neutralise, so forming pus. But there may also be some active foci, the bacilli in which have escaped opsonisation previously to encapsulation; these in due course proliferate and subsequently emerge on moderate bodily exertion, causing auto-inoculations, probably before the system has had time to recuperate from its losses and an exacerbation of the malady occurs. To meet this contingency, however (if the suggestions implied by Dr Paterson be sound), *pari passu* with the phenomena described above, an elaboration of a tuberculo-tropic and antimicrobic vaccine has taken place in the lymphatic glands corresponding to the sites of the original infection. At this stage of the malady these glands are densely, and therefore more or less imperviously, encapsulated in the neoplastic tissues. These glands having performed this important function now cease to act and become degenerated and caseated. The afferent and efferent vessels are blocked within and constricted without. The egress of this substance into the circulation is thus barred when it is most needed and recovery depends on its regulated or accidental admission into the circulation. After the surgical removal of certain tuberculous glands we may find in the unintentional vaccination thus effected an explanation for the occasional disappearance of tuberculous symptoms. This action is similar to the case of certain intra abdominal suspiciously cancerous tumours with glandular involvement, where, after opening the peritoneal cavity, the tumour mass for certain reasons has been left without further operative procedure and in a remarkable manner has been known to disappear subsequently. I merely offer these suggestions on the grounds of the high potency of an almost infinitesimal quantity of such vaccine, where present in the lymphatic system, and the possibility of its accidental admission into the circulation.

It is the purpose of this paper to attempt to demonstrate the theory that the mechanism of the therapeutics of x rays rests upon the induction of an auto-vaccination, subsequent to the resolvent action of the x rays on the rudimentary neoplastic encapsulating tissues about the tuberculous glands, thus rendering the vaccine accessible to the blood-stream. It will also be shown how its effects may be observed by minute temperature reactions, accompanied by similar advances in the opsonic index without negative phases, tested by the periodic estimation of the opsonic index to tubercle bacillus. As a preliminary it will be advisable to give some general account of the effects of x rays upon normal and abnormal tissues.

The x rays are known to have a special selective affinity for morbid tissues, independently of their position or of any inflammatory reaction. This selective action on morbid tissue may proceed without any signs of irritation or any apparent modification of the skin. The dose necessary for the production of an alopecia will naturally be less than that required for the destruction of the granulation tissue of an epithelioma. In the use of other therapeutic agents we are often obliged to vary the dose. A given drug may have a tonic action in a small dose, an emetic action in a moderate dose, and a poisonous action in a large dose. The same may be said of the x rays. Take, for example, their action on the scalp. In small fractional doses they have a stimulating effect on the hair, producing an action similar to that of a rubefacient lotion; whereas in large doses they cause epilation, and in still larger doses vesiculation, ulceration, and sloughing. Again, it is well known that certain drugs have a tendency to accumulate in the system and that in this way minute doses frequently repeated may produce serious results. To some extent this also is true of the x rays when frequently repeated doses are applied over the same spot, *but not when these doses are distributed over the body*, seeing that the locally absorbed ions are not influenced by the general circulation.[1]

Many authorities both in this country and abroad have studied, post mortem, the microscopic appearances of morbid tissues that have during life been subjected therapeutically to the action of x rays, and they have sought to establish the mechanism of its curative effects.

In regard to the therapeusis of x rays Dr. H. Lewis Jones[2] says, "The gradual onset (of radio-dermatitis) after a latent period, suggests that the lesion (x-ray dermatitis) is a trophoneurotic one due to the damage sustained by the superficial nerves of the part;" and again later he says, "It will be noticed that nothing is here given on the appearances presented by cutaneous nerves, and this is probably an omission of importance."

Schwartz, working in Holzknecht's laboratory, has further pointed out that the x rays decompose the lecithin in the neurolemma of the nerve filaments, producing methylamin. The inference would therefore be that primarily the nerve filaments are acted upon, producing a paresis of the capillaries, followed by a passive hyperæmia, and that secondarily an analgesia, and finally a necrosis, follow, with the usual line of demarcation, according to the quantity and the quality of the x rays applied. The subsequent processes of repair, depending on the rate of regeneration of the trophic nerve filaments, are naturally very slow and tedious.

[1] Belot's Radiotherapy.
[2] Medical Electricity, fourth edition, p. 476.

Dr. J. Belot[3] states in regard to lupus after irradiation: "The following is apparently the mechanism of cure by radiotherapy: the hyperæmia set up by the x rays provokes an abundant migration of leucocytes from the vessels. As may be seen after a tuberculin (*sic*) injection, the leucocytic infiltration commences at the periphery of the tubercular focus and penetrates by narrow tracks into the substance of the lupus nodules, these leucocytes being ultimately transformed into fusiform cells and fibrous connective tissues. The presence of these fusiform cells bears witness to the active proliferation of connective tissue. The lupus cells degenerate by vacuolisation; the nuclei lose their affinity for stains, necrose, and become absorbed, the diseased tissue being replaced by cicatricial growth. As Schwartz has shown, *all idea of bactericidal action falls to the ground*. The most important point in the case of lupus is the localisation of the inflammatory reaction and its concentration exactly at the diseased point, in consequence of the degeneration of the lupus nodules themselves. Both Schwartz and Neisser pointed out that there is in this respect a resemblance between the action of x rays and that of tuberculin, which also sets up inflammatory phenomena that are concentrated on the tuberculous nodules."

It is well known that all neoplastic tissue is a rudimentary replica, almost in every detail, of the tissue affected, and that such tissues are highly susceptible to the influence of x rays and of the less penetrating cathode rays. These stop short of damage to the normal and more organised tissues, when they are judiciously applied, and they restore metabolism where it has more or less come to a standstill.

So much, then, for the therapeutic action of the x rays on the normal and abnormal tissues. I now proceed to give cases occurring lately in my own practice upon which the theory of this paper is based. I wish to remark that during the past two years I have utilised these effects of the x rays solely with a view to restoring the natural contour and to removing the disfigurement in females and males in such situations as the cervical, peribronchial and mediastinal regions. In the last case a mass of glands to the left of the sternum had produced an "aneurysmal" bulging of the third, fourth, and fifth sterno costal cartilages and marked cardiac displacement, &c. The invariable results, I need hardly add, were a disappearance of the swellings after alternate soft swellings and shrinkings. Mild toxæmias in the intervals, as one would anticipate, without appreciable rises of temperature, more marked, however, in the mediastinal case, did occur. No symptoms of re-infection were encountered, and, from what has been above stated, this bogey need not be apprehended, except in early acute cases. On the other hand, these cases almost always without exception gained very appreciably in weight and improved in their general health in a remarkable manner. I became curious to explain this fact and as none of their opsonic indices had been estimated it occurred to me that Dr. Paterson's suggestion might account for it. It was at this time that my attention was drawn to Dr. Paterson's article. Shortly afterwards another of these cases of enlarged tuberculous glands came up for treatment and I was enabled by the kindness of Dr. W. E. Facey and Mr. A. B. Batley of Christchurch to have the patient's opsonic index estimated previously to, and during, a series of irradiations by the x rays.

The patient was a single woman, aged 27 years, an only daughter, both of whose parents were living and well. Her childhood had been spent in London where she had acquired continuous throat trouble and inflammation of both tonsils, which had been partially removed at the age of 11 years. She had suffered much from anæmia as a girl and also from bronchitis and loss of appetite. The patient first came under my medical observation in April, 1906, suffering from inveterate constipation. In the month of August following she drew my attention to certain glandular swellings in the neck, more noticeable on the right than on the left side. She had been steadily losing weight during the previous six months. Her record weight had been 9 stones 8 pounds, and she was now 8 stones 2 pounds; her height was 5 feet 4 inches. The body, not so well nourished, but not emaciated, gave the appearance of one in ordinary good health. The temperature had remained subnormal for some months, ranging from 96° to 98° F. The patient's habits were inactive and she was easily fatigued but there were no further symptoms of constitutional disease traceable. The opsonic index to tubercle bacilli on Sept. 1st was 0·5, with brief irradiations on the 2nd, 4th, and 6th; on the 6th it was 0·95, with brief irradiations on the 12th, 13th, and 14th; on the 16th, 0·82, with slight skin reaction and with brief irradiations on the 18th, 19th, and 20th; on the 22nd, 0·90 (the patient had returned after a visit to London); on Oct. 26th, 1·11; on Nov. 1st, 1·09 (the patient throughout the previous day had taken an active part in a bazaar); on the 7th, 0·72, with irradiations on the 10th, 11th, 12th, and 13th; on the 14th, 0·82; and on the 22nd, 1·2. During this period a gain in weight of 9½ pounds took place and a general improvement in health with the disappearance to external observation of the glands in the neck. The temperature had ranged between 97° and 99°, each irradiation being followed by a rise of from 0·5° to 1° in temperature. In the intervals of the irradiations the glands softened, swelled, and shrank, with tenderness on pressure, until they disappeared.

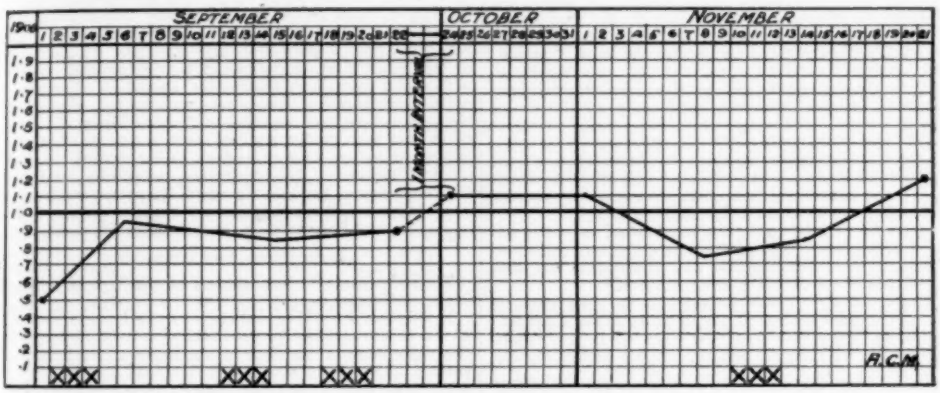

Chart showing the variations in the opsonic index.

This case is not considered cured nor as yet completed, but the technique necessary for continuing to obtain the opsonic index in this, or in a number of cases, necessarily has its limitations, owing to the expense incurred in obtaining the opsonic index, a matter of about £20 in each case. This method can therefore only be employed in occasional cases where further proof of this important effect of treatment by the x rays may be desired.

The limitation of the phases of the opsonic curve within narrow and normal limits—the entire absence of negative phases, and finally, the minute range of the temperature

[3] Radiotherapy, p. 307.

reactions go far, in the opinion of the writer of this paper, to render his theory worthy of consideration.

The radio-therapeutic technique, with radiosometric chart, I propose submitting in due course to *Medical Electrology and Radiology*, in the October number of which journal a significant article from the pen of Dr. H. B. Wilkinson, physician in charge of the San Lazaro Hospital, Manila, appears in an abstract, under the title "The Treatment of Leprosy with the X Rays," to which I would direct the attention of those interested in advanced therapeutics. Of this I will quote one sentence: "Another case was well after 14 treatments. The writer is inclined to believe that when a local lesion of leprosy is treated with the x rays the organisms there localised are killed, and their bodies are absorbed into the system, thereby producing an immunity of the system against the living organisms."

Holzknecht says: "The cure of an infective process is not due to any bactericidal action of the x rays, since the bactericidal dose is many times as great as the curative dose." This theory in regard to the mechanism of x rays is quite compatible with the theory of the parasitic origin of cancer. "Skinner has given a detailed *résumé* of the hypotheses put forward to explain the cure of malignant tumours by the x rays. ..... According to the third hypothesis cancer is a parasitic disease, and the x rays destroy or hinder the development of the parasites. It may be, however, that the x rays are not destructive to the parasite itself, but in some way modify the tissues so as to prevent its development."[4]

In this reference, Dr. G. H. A. Clowes of the New York State Cancer Laboratory, in his article entitled "A Study of the Influence exerted by a Variety of Physical and Chemical Forces on the Virulence of Carcinoma in Mice"[5] states: "That immune forces are produced in the serum in gradually increasing quantities as the tumour progresses is indicated by the tendency frequently exhibited by tumours to remain stationary, after fairly rapid development, and then subsequently either to grow rapidly or retrogress. In this connexion it must be noted that x rays produce a much more marked effect at this stage, at which apparently the tumour (?) has quite overcome the natural immunity of the mouse, and is developing rapidly."

Dr. Belot thus sums up: "In conclusion, we may say that the x rays exercise a special action on certain cancerous cells, causing their degeneration and absorption, but that the mechanism of the action is still unknown."

I am tempted by the obvious therapeutic parallelism in the recently reputed medicinal agents in cancer to enter into their probable therapeutic values as recorded in the experience of others. I refer to papain, trypsin, and amylopsin, but I will only add that these enzymes, when injected in emulsion into the encapsulating tissues where metabolism has come to a standstill, bring about active resolution (if veins are avoided) by virtue of their proteolytic and diastatic properties on those tissues, when the lesions are accessible and not too deeply situated. They may thus liberate the vaccine when present in the lymphatic glands with the desired result if they do not influence it unfavourably by admixture before neutralisation.

Clinical experience is greatly in advance of the theories hitherto put forward, and I am not in a position at present to make manifest the above theory "by columns of figures and percentages of calculations of cures." I merely venture to submit these observations in the hope that if confirmed by those who have the necessary facilities for working in this department of therapeutics they will afford a solid basis for the scientific employment of radiotherapy, as well as for the proper classification of those conditions in which its use is indicated, and a most important field of medication will thus be opened up among those chronic ailments which occur after middle life and in which ordinary therapeutic measures have so far failed.

Bournemouth.

[4] Belot's Radiotherapy.
[5] Brit. Med. Jour., Dec. 1st, 1906, p. 1553.

BRITISH ELECTRO-THERAPEUTIC SOCIETY.—The annual general meeting of this society will be held at 11, Chandos-street, Cavendish-square, W., to-day (Friday, Jan. 25th) at 8 30 P.M., when the election of officers of the society for 1907 will take place. Mr. J. Hall-Edwards, the retiring president, will deliver an address.

TRACHEOTOMY IN SLIGHT RESPIRATORY OBSTRUCTION ASSOCIATED WITH FEBRILE TOXÆMIA.

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IN fever practice there is a type of case occasionally encountered in which toxæmia is accompanied by very slight—apparently inconsiderable—obstruction of respiration. Cases of this kind are perhaps commonest in septic scarlet fever with swelling in the faucial region and the naso-pharynx, possibly with some degree of septic laryngitis. A somewhat similar condition, however, is now and then seen in small-pox; one case of this type occurred at Dagenham Hospital during the last epidemic in London. The laryngitis caused a slight degree of obstruction which, owing to the enfeebled state of the patient, soon began to tell on his cardiac condition. Tracheotomy was performed; it was followed by a remarkable improvement and the patient recovered. There is also a septic type of diphtheria defined by Monti in which the larynx is but little affected; there is slight obstruction but it is not progressive and the patient apparently goes downhill as a result of the toxæmia alone. Some years ago, in a case at Plaistow Hospital, the question arose whether the patient's steady loss of ground might not be in part the result of very slight respiratory obstruction—strain on the respiratory muscles and deficiency of oxygen. The result of tracheotomy was a striking improvement in the condition of the patient with ultimate recovery where it seemed hardly possible. In consequence of this result it was laid down as a principle that no patient with slight respiratory obstruction should be allowed to die without tracheotomy having been resorted to. From time to time such cases have occurred at Plaistow Hospital; some of them have been under my care, and it may be of service in calling attention to a procedure so far not emphasised in medical literature. Its importance cannot be measured by the frequency of the cases in which it applies, because when such cases do occur they are of a grave nature, and the operation, as I hope to show, is sometimes life-saving.

INDICATIONS FOR OPERATION.

The indications for tracheotomy in the type of case under consideration are:—

1. *Difficult breathing.*—Owing to the intense congestion of the fauces and the profuse muco-purulent discharge from the naso-pharynx insufficient air reaches the lungs. The patient may breathe with the mouth open and the lower jaw often drops during each inspiration. The breathing is noisy owing to gurgling of the accumulated discharge in the pharynx, stridor being seldom present. The respirations are usually increased in frequency and the alæ nasi are brought into action; this increase in frequency is not marked and as in definite laryngeal obstruction the respirations may be slower than one might expect from the height of the temperature and the rapidity of the pulse. Apart from the swelling in the pharyngeal region there is not uncommonly marked lymphadenitis on both sides of the neck; this is often accompanied by œdema and even in some cases by an acute inflammation of the subcutaneous tissues of the neck; the result may then be pressure on the trachea, an exceptional indication for operation. It is necessary to lay stress on the fact that the obstruction is usually extremely slight and that *a priori* there might seem little hope of material benefit from operation. It would appear, however, that it is its duration, possibly extending to several days, which tells on the general condition and, especially, puts a strain on the heart.

2. *Restlessness.*—This is partly due to the difficult breathing; the patient is often delirious or semi-conscious and does not seem to realise that his respiration is laboured, yet he may appear obviously distressed. He often tosses about uneasily, pushes away the bed-clothes, and sometimes tries to sit up. He may be unable to sleep, sedatives having very little effect. The condition is, of course, one that must tell on the already toxin-weakened—perhaps partly asphyxiated—heart. The distress often increases considerably when the patient attempts to drink or during applications to the throat and nose. At such times there may be coughing, return of fluid through the nose, cyanosis, exhaustion so great that treatment has to be stopped, feeding by the mouth discontinued, and rectal feeding resorted to.

3. *Recession.*—There is sometimes recession of the epigastrium during inspiration, especially in very young children. It is then accompanied by retraction of the lower intercostal spaces, but it is never extreme as in cases of laryngeal diphtheria. Usually the recession is very slight or even absent. When it is not marked it can often be more easily appreciated by placing the hand on the lower part of the chest.

4. *Condition of the heart.*—The strain placed on the heart by the continued, although slight, obstruction is the most important factor in the unfavourable drift of such cases. The heart responds for a time by over-action—often apparent when the hand is placed over the præcordial region. But enfeebled and probably receiving insufficient oxygen it sooner or later begins to fail; the first sign noticed may be a slight diminution in the force of beat during inspiration—an interesting fact in view of the small degrees of obstruction. Thereafter, if the obstruction remains unrelieved the heart becomes gradually weaker and the patient dies from heart failure.

5. *Condition of the pulse.*—The pulse is at first full and rapid; it soon increases in rate and becomes weaker. This difference in volume may at first only be marked during inspiration, and in some cases there may even be a typical pulsus paradoxus—a sign of extreme gravity in the absence of surgical interference.

6. *Colour of the face.*—In most cases the colour is not much altered; there may be slight lividity about the mouth and nose; occasionally the lips are rather blue but definite cyanosis is rare.

7. *Septic laryngitis.*—In most cases more or less septic laryngitis is present but it seldom in itself calls for operation; in one case of the present series (Case 3) laryngeal symptoms with signs of obstruction developed at the end of the second week and were due to extension of the septic process to the larynx.

Apart from these cases, tracheotomy has been done in one or two instances for hæmorrhage from the naso-pharynx in which plugging of the posterior nares did not arrest the bleeding. The operation was done as a last resource and the bleeding checked by plugging the pharynx.

One weighty consideration in favour of operation is that the drift of the case is towards death. The improvement within a few hours, especially in the cardiac condition, is remarkable, and this is true even of cases which ultimately die from the general severity of the attack. Considering the severity of the cases, it is to be expected that in spite of temporary improvement death will sometimes occur.

OPERATION.

In spite of the marked improvement these cases show after tracheotomy there are certain points which should be considered before it is undertaken, as owing to the exhausted state of the patient a special element of danger enters into it.

1. *Anæsthetic.*—The question of the anæsthetic is often a serious one. The patients are usually in such an exhausted condition that very little of any anæsthetic should be given. Often it will be better to operate under local anæsthesia; if a general anæsthetic is used, ethyl chloride is in my experience satisfactory.

2. *Condition of the neck.*—Owing to the swelling and œdema of the tissues of the neck the operation may be a little more difficult; the trachea will not be so easily felt, especially in young and fat children.

3. *Hæmorrhage.*—This is the principal danger of the operation. In septic conditions there is always a certain tendency to bleeding; there may be more or less epistaxis, the lips and mouth become ulcerated and bleed easily, and if a wound is made oozing tends to continue even when all vessels of any size are tied; forci-pressure therefore is, as a rule, inefficient. The only resource is to plug the wound tightly around the tube. Adrenalin may be used if necessary but should be avoided if possible; it has been thought lately that in a few cases in which it had been used it increased the dryness of the trachea below the tube and gave rise to considerable trouble during the after-treatment. Styptics which coagulate blood should also be avoided, as they may induce clotting of the blood inside the trachea; fatal obstruction has resulted.

4. *Method.*—The usual method of operation in this hospital for cases of laryngeal diphtheria is the high rapid tracheotomy done with a small incision. It is performed in two steps: one downward incision through the skin and subcutaneous tissues and one upwards through the upper two or three rings of the trachea. No stitches or ligatures are necessary in ordinary cases, as there is, as a rule, very little bleeding. This is the method generally used in the cases under consideration, and in these when troublesome oozing occurs it may be advisable to enlarge the wound and seek for bleeding points, but experience shows that such bleeding is nearly always controlled by plugging. The only cases in which the slow method with a long incision has a definite claim is when swelling and œdema of the neck make it difficult to incise and enter the trachea.

5. *Tubes.*—Parker's tubes are usually employed; Durham's lobster tail tubes are, however, very serviceable when there is much swelling, as the stem is longer and the moveable plate can be adapted to the neck. It is preferable to use as large a tube as possible (i.e., a No. 3 Parker for a child of two years); the advantage is that a wide tube will not get blocked so easily with the profuse thick mucus which is coughed through it. The length of time that the tube will have to be worn varies, but it is better to leave it until the throat is quite clean and no discharge passes through it. The outer tube is taken out once or twice a day to be sterilised and if it cannot be dispensed with by the fifth morning a rubber tube is substituted.

EFFECTS OF THE OPERATION.

Almost at once restlessness diminishes, respiration becomes quite free, and the patient tends to sleep. The pulse also shows definite—often very striking—improvement. A fall of temperature within the first few hours is common; it is often followed by a rise and the temperature may then be even higher than before the operation, but it usually comes down within three days. This immediate post-operative fall of temperature was noticed in seven cases of the present series. One marked advantage of the operation is that afterwards the treatment of the nose and throat is very much facilitated. The throat may be swabbed and the nose sprayed without causing any distress or discomfort to the patient.

The following is a brief history of 15 cases which were admitted into Plaistow Hospital. They were cases of septic scarlet fever or mixed cases—i.e., scarlet fever and diphtheria.

CASE 1.—A girl, aged 21 years, was admitted on Feb. 20th, 1903, with scarlet fever and diphtheria. There was some sloughy membrane on both tonsils and also one or two yellowish white spots were present on the posterior pharyngeal wall; the pharynx was intensely congested and very œdematous. A profuse generalised scarlatinal rash was present. The temperature was 103° F., the pulse was 130, and the respirations were 36. During the first days there was a steady increase of difficulty in the breathing. The patient was almost continuously delirious and took food very unwillingly. Albuminuria appeared and lasted until the end of the fourth week. An abscess formed on the right side of the neck and profuse nasal discharge was present. The temperature remained high, reaching once to 104·4°. On the seventh day there was much respiratory distress; the respirations reached 40 and the pulse was much more rapid and feeble. Breathing was noisy and inspiration in particular was laboured; evidently there was constant strain on the chest walls. The patient was in fact steadily losing ground from the slight respiratory obstruction and want of rest which sedatives failed to give. Throughout the seventh day she was only partially conscious and by the evening had sunk into a deep stupor. There was some lividity of the lips and the extremities. As a result of tracheotomy, breathing became obviously easier and within a few minutes some improvement was appreciable in the pulse. This improvement continued through the night and on the next morning the patient was conscious. Some membrane and much thick mucus were coughed up through the tube during the first few days. Five days after the operation the temperature was normal and the tube was removed. In all, 108,000 units of antitoxin were given subcutaneously in four doses. The patient remained enfeebled for many months, but eventually she completely recovered.

Remarks.—The degree of obstruction in this case was far less than that which ordinarily determines tracheotomy and the operation was only undertaken as a last resource in an apparently hopeless case. The total dose of antitoxin given was very large, the case having occurred at a time when maximum doses were used for severe laryngeal cases and also in mixed cases. The antitoxin was given on the mere probability that the larynx and the passages beyond might be involved in the diphtheria process. As already stated, this diagnosis proved correct.

CASE 2.—A boy, aged one year, was admitted with scarlet fever and diphtheria on April 6th, 1904, on what was said to be the second day of the disease. There was a slight rash on the body and the pharynx was very congested. The tonsils were covered with membrane. There was profuse discharge from the nose and adenitis was present on both sides of the neck. The temperature was 102·8° F., the pulse was 168, and the respirations were 44. 20,000 units of antitoxin were injected subcutaneously. On the third day the temperature rose to 105° and the respirations became more rapid. The child refused to be fed by the mouth and nasal feeds had to be resorted to, but it soon became impossible to pass the nasal catheter as it caused so much distress and

the child had to be fed by the rectum. On the sixth day the breathing was more laboured, there was slight recession, and the pulse was more rapid and softer. Tracheotomy was performed. Immediately afterwards the respirations became slower and easier and the temperature came down from 103·8 to 100·6°; it rose again, however, to 104·4° before death, which occurred 13 hours after the operation.

CASE 3.—A boy, aged four years, was admitted with scarlet fever on April 27th, 1904, on the fifth day of the disease. On admission the body was covered with a characteristic rash; the tonsils were swollen and covered with a thin yellowish exudate but there was no nasal discharge. The temperature was 103° F., the pulse was 136 and the respirations were 36. The condition of the throat improved slightly during the first few days, but on May 10th a laryngeal cough and stridor developed. The possibility of membranous croup was practically excluded as the child had received a prophylactic dose of antitoxin on the day of admission. The obstruction was only slight, but as it was beginning to tell on the general condition of the child intubation was tried; only partial relief followed and tracheotomy had to be done. It was evident that the obstruction was due to septic laryngitis; the relief which followed the operation was complete. The tube was removed on the third day and the child was quite comfortable without it, but as the wound began to close the distress returned and four days later the wound had to be reopened and a rubber tube inserted. This tube had to be worn for several weeks and each time it was removed the child became very distressed. His condition improved very much until June 6th when signs of pleuro-pneumonia on the left side of the chest appeared. Ten ounces of fluid were aspirated on the following day, but it collected again and became purulent. The empyema was opened and drained on June 10th. The child slowly recovered from this complication and when strong enough was allowed to get up. He was then still wearing his rubber tracheotomy tube. On Sept. 16th it was removed and the child was intubated with a No. 1 metal tube; this one was worn until Sept. 26th; it was removed every fourth day for cleaning purposes and replaced. On the 26th a No. 2 tube was inserted and was worn until Oct. 9th. Between that day and the 16th the tube was repeatedly coughed up, on one occasion three times in half an hour, and as each time the child could not breathe comfortably for more than a few minutes a second tracheotomy was performed on the 16th. During the time that he was intubated he was able to take solid food by the mouth but fluids had to be given with the nasal catheter. On Nov. 3rd the child contracted diphtheria; it attacked the tracheotomy wound, involved the trachea, and rapidly spread to the bronchi. The patient died on Nov. 11th.

Remarks.—This case unfortunately ended fatally but it is interesting for several reasons. It is highly probable that the child would have died soon after admission if the first tracheotomy had not been performed; the septic laryngitis undoubtedly caused some deep ulceration which later led to cicatricial stenosis and required a secondary intubation. The repeated intubations dilated the stenosis up to a certain point but may have caused recurrence of the ulceration, as repeated coughing up of the tube indicates this condition. Finally, the diphtherial process involved the tracheotomy wound, a rare occurrence since antitoxin has been used. In this case 40,000 units were given intravenously.

CASE 4.—A boy, aged five years, was admitted on Sept. 26th, 1904, with scarlet fever. There was a history of sore-throat and headache since the 24th; the rash appeared on the 25th. On admission the child was delirious and the body was covered with a profuse scarlatinal rash. There was no rhinorrhœa but the pharynx was covered with thick muco-pus. The temperature was 104·2° F. and the pulse was 140. The respirations were 32 but there was then no marked difficulty in the breathing. On the 28th the child complained of headache and earache and the neck became swollen. During the first few days the condition of the throat improved slightly and there was less fever, but the general condition again grew worse and on Oct. 8th the child had some epistaxis and nasal discharge. On the 9th the temperature was again 104° and the restlessness increased; there was more discharge from the nose and throat and signs of double otitis media developed. On the 11th the swelling of the cervical glands had increased and the breathing was very distressed; the pulse was 160 and weaker. On the 12th the child vomited several times, albuminuria appeared, and the respirations became more laboured. Tracheotomy was performed on the 13th and was followed by complete relief of the breathing. The pulse improved markedly soon after the operation; it was slower (132) and stronger. 12 hours later the temperature had come down from 103·6° to 100·8°. For several days the state of the throat remained unchanged and there was profuse and offensive discharge from the nose, but the treatment was made much easier after the tracheotomy. On the 18th a patch of necrosed tissue was present on the right tonsil and part of the soft palate, and on the 21st there was profuse salivation, the saliva being blood-stained. During the following night the slough separated and there was hæmorrhage from a deep wound in the soft palate; blood was lost to the amount of about six ounces. All treatment of the nose and throat was discontinued, also the nasal feeds which had been given since tracheotomy; the child was now fed per rectum. The bleeding was checked by pressing pieces of ice into the ulcerated cavity and holding them there with the finger. There was no recurrence of the hæmorrhage and 24 hours later the nasal feeds were resumed. The patient remained in a critical condition for several days, fever persisting until Nov. 4th. On the 7th the tracheotomy tube was permanently removed; there was still some regurgitation of fluids through the nose owing to loss of part of the soft palate, and the child had to be nasal-fed for several weeks, but eventually was able to take all food by the mouth. He was discharged quite well on Dec. 5th. His voice has remained nasal ever since.

Remarks.—In this case the operation served a double purpose: it not only relieved the respiratory obstruction but made it possible to deal with the hæmorrhage efficiently and so probably saved the patient's life.

CASE 5.—A boy, aged one year, was admitted with scarlet fever on Dec. 26th, 1904 on the eighth day of the disease. On admission the rash was still evident on the body, the throat was swollen, and a thin grey exudation covered the uvula, the tonsils, and part of the soft palate. The temperature was 102·4° F. and the pulse was 132. The respirations were 32. The condition remained unchanged until the 29th; on that day there was more discharge from the throat, rhinorrhœa appeared, and the glands of the neck began to swell. The child was given 20 cubic centimetres of antistreptococcic serum intravenously and 10 cubic centimetres subcutaneously. On the 30th the respirations were more rapid and laboured and there was some recession. The temperature was 103·4°, the pulse was 145, and the respirations had increased to 40. Tracheotomy was performed and soon afterwards a great deal of muco-pus was coughed up through the tube and the respirations were relieved for a time. The discharge, however, became very thick and frequently blocked the tube; this each time caused recurrence of the distress and the tube had often to be removed and cleaned during the first two days which followed the operation. The heart gradually became weaker, the temperature went on rising, and remained between 104° and 105° until death, which occurred on Jan. 2nd, from bronchopneumonia.

CASE 6.—A boy, aged five years, was admitted with scarlet fever on April 26th, 1905. The history was that on the 21st he had severe vomiting, sore throat, earache, and nasal discharge. The rash appeared on the 22nd. On admission the patient was moribund, he was unconscious, his breathing was laboured, and he had some recession. The temperature was 103·8° F., the pulse was 124 and very small, and the respirations were 62. There was considerable swelling in the fauçal region; the tonsils were so swollen and the soft palate was so œdematous that the fauces were almost completely occluded. There was profuse discharge from the nose and throat and the cervical glands were moderately enlarged. The right ear was also discharging. The case appeared beyond the reach of any non-operative treatment. Tracheotomy was done under local anæsthesia about an hour after admission and the child was at once able to breathe more comfortably; a great deal of offensive mucus was coughed up through the wound and the respirations came down to 42. The child was placed in steam. From the appearance of the throat a diphtherial element was suspected (although a subsequent cultivation only showed streptococci) and 10 000 units of antitoxin, with 25 cubic centimetres of antistreptococcic serum were injected intravenously by direct puncture. 15 hours later the temperature had come down from 103·6° to 101°, but the heart was so weak that heart failure seemed imminent; stimulants were freely given and the pulse improved slightly. On the 28th the tube was removed but the patient was still kept in steam for three days longer. Albuminuria appeared and there was almost complete anuria for two days. For the first 36 hours after the operation the child was fed by the rectum in case the use of the nasal tube should embarrass respiration. Nasal feeding was then employed and was continued until the tracheotomy wound had completely healed. As local treatment formalin was applied to the throat with a cotton-wool swab. The cervical glands continued to enlarge during the first few days but they gradually subsided and on May 2nd they could just be felt and the throat was almost clean. Thenceforward the child improved slowly. Left otitis media developed during the second week and an abscess on the left side of the neck during the fifth week. He was discharged quite well at the end of the eleventh week.

CASE 7.—A girl, aged six years, was admitted with scarlet fever on May 24th, 1905, on the sixth day of the disease. On admission the rash had faded but the nose was discharging freely; the throat appeared very septic and there was some salivation. The temperature was 103·8° F. and the child looked drowsy. During the first week she did not improve. The temperature remained high. Food was taken very unwillingly. The glands of the neck began to swell and signs of double otitis developed. At the beginning of the second week there was slight improvement. The temperature came down one or two degrees and the child appeared more comfortable, but towards the end of the week profuse hæmorrhage from the nose and throat occurred. It was checked by plugging the posterior nares and by spraying the throat with hazeline. She was weaker and more restless. The temperature was again 103°. A septic rash appeared all over the body and there was some diarrhœa with blood in the stools. Rectal feeds had to be given for three days as she would not take food by the mouth and the nasal catheter could not be passed owing to the danger of further hæmorrhage. There was partial suppression of urine. During the third week the condition was the same, except that the patient appeared weaker. She often talked in her sleep and was very restless when awake. The throat, nose, and ears showed no sign of improvement. During the fourth week the breathing became noisy and she often coughed. Some ulcerative stomatitis was present. Two teeth became loose and gangrenous areas developed around them. The teeth were removed and the patches were touched with liquefied carbolic acid. On June 17th the restlessness increased. The neck was more swollen and the breathing was distressed. At times there was also some lividity of the lips. Tracheotomy was performed as a last resource and was beneficial in relieving the respiratory obstruction and the restlessness. In spite of it the child steadily grew worse, the gangrenous process in the mouth spread, and more teeth had to be extracted. The mouth was treated with chromic acid, but the gangrene extended to the lower lip and the chin, partly destroying the soft tissues. Some hæmorrhage from the mouth recurred at intervals during the fifth week. The child died from toxæmia on June 30th.

CASE 8.—A boy, aged three years, was admitted with scarlet fever on Sept. 13th, 1905, on the ninth day of the disease. No rash was present. The temperature was 101·5° F., the respirations were 36, and the pulse was 140 and of low tension. The lips and tongue were ulcerated and bled easily. The throat was congested and covered with muco-pus and the glands of the neck were very swollen, chiefly on the left side. The heart sounds were clear but weak and there was a slight cough but no physical signs in the lungs. The child had to be nasal fed partly owing to regurgitation of fluids through the nose and partly because he refused to take nourishment by the mouth. On the 14th the general condition was the same and 20 cubic centimetres of antistreptococcic serum were injected intravenously. On the 15th the respirations became more rapid (40) and distressed. There were slight recession and croupy cough. The child was put in steam with some relief. A few hours later, however, the recession and restlessness increased, the pulse became more rapid and weaker (chiefly during inspiration), and tracheotomy was performed under local anæsthesia.

The respirations remained rapid but became quite free and the patient was able to sleep. No membrane was coughed through the tube. On the 17th the naso-pharynx was so swollen that the nasal catheter could not be passed and he had to be rectal fed. There was right otitis media. The pulse became gradually weaker and the child died from heart failure 22 hours after the operation.

CASE 9.—A boy, aged nine years, was admitted on Oct. 31st, 1905, with scarlet fever. There was a history of 11 days' illness which began with vomiting sore-throat, and profuse nasal discharge. On admission the child presented all the signs of a very septic case. There was profuse offensive discharge from the nose and ears, the glands of the neck were very swollen, and the throat was congested and covered with a thin exudate. Respiration was noisy and laboured and there was some recession. The temperature was 101·8° F. and the pulse was 120. The child was delirious and very restless. On Nov. 1st the recession increased, the colour of the face, which from the first had been greyish, became rather livid, and there was also cyanosis of the lips. He was more restless and it became evident from the nature of the pulse that he was going downhill rapidly. Tracheotomy was performed under local anæsthesia, the child being too weak for a general anæsthetic. It was followed by complete relief of respiration, although the rate remained rapid. Soon after the operation the temperature dropped from 102·2° to 98·6°. 12 hours later he appeared moribund and his pulse could scarcely be felt. He was given stimulants with slight improvement but for several days he had frequent attacks of collapse during which heart failure seemed imminent. On the 3rd he coughed up a great deal of thick, offensive mucus through the tube. He was put in steam. On the 4th the tube was permanently removed. On the 5th the throat was cleaner, there was less discharge from the nose, and the cardiac condition had improved slightly but the temperature was 101·8°. On the 8th the temperature was normal and steady improvement set in. The child had nephritis during the tenth and eleventh weeks but after that he made an uninterrupted recovery. He was kept in the hospital on account of persistent ear discharge until the nineteenth week but eventually went home quite well on March 3rd, 1906.

CASE 10.—A boy, aged three years, was admitted on Nov. 18th, 1905, on the fifth day of illness. There was no rash on admission, but the throat was in a very septic condition. The swelling of the glands of the neck was extreme and there was profuse thick discharge from the nose. The child was very collapsed when he came in and his breathing was noisy but there was no recession. The general condition remained unchanged until 12 days later when the breathing became more laboured. The neck was more swollen and œdematous and presented a typical picture of the "bull neck." The pulse was very much worse. A deep abscess had formed on the right of the neck; this was opened and tracheotomy was performed. The child was much more comfortable and his general condition began to improve. During the first few days he was in the hospital swallowing was practically impossible owing to the intense swelling in the faucial region. Nasal feeds were resorted to but could not always be given as the passage of the catheter was often impossible owing to the congested state of the naso pharynx; on these occasions rectal feeds had to be given. The patient was able to breathe comfortably without the tube on the fifth day after the operation but when the wound began to close the distress returned and the tube had to be reinserted. It was permanently removed seven days later. 17 days after the operation the temperature was normal and from that time the throat began to improve slowly and the swelling of the neck gradually subsided. This case was complicated by double otitis media and the convalescence was very slow. The child was sent home quite well in the twenty-second week.

The following case was extremely severe and approached the "malignant type" which may kill in 36 or 48 hours.

CASE 11.—A boy, aged seven years, was admitted on March 15th, 1906, with scarlet fever. There was a history of two days illness which began with sore throat and violent vomiting. On admission the temperature was 100·6° F. but soon rose to 103° and remained between 103° and 104° until death. The pulse was 120 and small and the respirations were 24. There was profuse offensive discharge from the nose and ears. The throat was very congested. The tonsils were swollen. The soft palate was very œdematous. The tongue was thickly furred and could only be protruded with difficulty. Both sides of the neck were markedly swollen. The rash was intense and in places almost petechial; it only partly disappeared on pressure and covered the whole body. During the first two days the condition grew steadily worse; the child vomited at frequent intervals and owing to the condition of the naso-pharynx the breathing became very difficult. The patient tended from time to time to become cold but no rigor occurred. He was almost unconscious and very restless. On the morning of the third day the respirations had become very laboured and the pulse was much weaker; there was also slight indrawing of the lower part of the chest during inspiration. Tracheotomy was performed under local anæsthesia and completely relieved the distress. The child became very quiet but the pulse grew weaker and death occurred three hours later.

Remarks.—**In this case the relief following the operation was so striking that it was deeply regretted that it had not been done soon after admission. However, owing to the profound toxæmia present, it is doubtful whether an early operation would have altered the prognosis but it would certainly have relieved the respiratory distress and restlessness and very much facilitated the nursing of the case.**

CASE 12.—A boy, aged two years, was admitted with scarlet fever on March 23rd 1906, the seventh day of the disease. On admission a scarlatinal rash was still present on the abdomen and limbs. Both sides of the neck were swollen and there was an abundant muco purulent discharge from the nose. Respiration was rapid and difficult, the pulse was 144 and the temperature was 103° F. It was stated that the breathing had been laboured during the two days before admission. The temperature remained high (between 103° and 104°) for the first 36 hours. Meanwhile the respiratory distress steadily increased, the pulse grew weaker, and some recession appeared. Tracheotomy was performed on the 25th. Troublesome bleeding occurred and could not be stopped by forci-pressure, as it was a general oozing characteristic of these septic cases; it was only controlled by plugging the wound tightly around the tube. The breathing was relieved and the temperature dropped from 103·2° to 99·8°. As much thick mucus was being coughed up through the tube the child was put in steam. On the 27th the temperature was still high and the swelling of the neck had increased; it was more brawny and had extended upwards towards the scalp. On the 28th there was diffuse cellulitis of the neck and scalp. The tracheotomy wound was looking quite clean at the time of death, which occurred on that day from toxæmia.

CASE 13.—A boy, aged 11 years, was admitted with scarlet fever and diphtheria on Sept. 3rd, 1906, on the sixth day of the disease. On admission a profuse bright scarlatinal rash covered the whole body. The throat was very swollen and œdematous and there was some dirty-looking membrane on one tonsil. The posterior wall of the pharynx was almost completely hidden by the swelling of the faucial region; what could be seen of it was covered with thick muco-pus. The cervical glands were very swollen and there was a great deal of offensive discharge from the nose. The tongue and lips were ulcerated and bled readily. The child was delirious; he refused to take his food and constantly tried to sit up in bed. The temperature was 103° F., the pulse was 144, and the respirations were 40. He was given 20,000 units of antitoxin and 20 cubic centimetres of antistreptococcic serum subcutaneously. During the evening the restlessness increased, breathing became very laboured, and there was slight recession during inspiration. The pulse was more rapid (160) and weaker. Tracheotomy was performed at 1 o'clock the next morning and was followed by a striking improvement. The patient was able to sleep all night, his respirations became quite free, and his pulse stronger and slower (136). There was considerable hæmorrhage at the time of the operation but it was controlled by plugging the wound and did not recur. During the following days pieces of membrane and much muco-pus were coughed up through the tube. The throat remained in the same state for several days. On the 12th the throat was clean and the tube was removed. On the 16th right otitis media developed. There was some ear discharge for four weeks and the child was sent home quite well in the ninth week.

CASE 14.—A boy, aged two years, was admitted with scarlet fever and diphtheria on Oct. 12th, 1906, with a history of four days' illness. On admission a bright rash covered the body and limbs. The throat was congested and some membrane was present on both tonsils and the soft palate. There was some lymphadenitis on both sides of the neck. The temperature was 102·6° F., the pulse was 136, and the respirations were 44. The heart sounds were clear but weak. Antitoxin (12,000 units) and antistreptococcic serum (20 cubic centimetres) were injected subcutaneously. On the evening of the 13th the child became more restless and there was a slight cough which at times sounded croupy. The pulse went up to 160 with no corresponding increase of the temperature and it was very weak. Some recession was present and the child looked distressed although the colour was good. From the condition of the pulse it was evident that the heart was feeling the strain of the obstruction. Tracheotomy was performed and as soon as the trachea was opened several large pieces of membrane were coughed up. For a time the child breathed quite easily but on the evening of the 14th signs of broncho-pneumonia developed. More antitoxin (8,000 units) were given and the child was put in steam. On the 15th there was some cyanosis. Inhalations of oxygen were tried and gave great relief, but only for a short time. The respirations became gradually more rapid and shallow and the patient died the same evening, 42 hours after the operation.

The following case was not operated on for obstruction but for uncontrollable hæmorrhage from the naso-pharynx.

CASE 15.—A girl, aged six years, was admitted on Dec. 28th, 1904, with scarlet fever. On admission the rash was still present on the body, there was profuse muco-purulent discharge from the nose and pharynx, and the tonsils were covered with thick cheesy exudate. During the first week the temperature remained above 103° F. and the general appearance was that of a very septic case. At the end of the second week profuse epistaxis occurred; plugging of the posterior nares was tried without success. As the child was getting collapsed tracheotomy was performed as a last resource and the pharynx was completely plugged; this efficiently controlled the bleeding. Troublesome hæmorrhage occurred from the wound and was only checked with difficulty. The patient died 12 hours later from toxæmia.

CONCLUSION.

In reviewing the cases described above it appears that in all of them the operation was beneficial; in the greater number the benefit proved only temporary but there were some in which, as far as could be judged, the patient's life was saved. Those who died were most of them very young and in children under three years the outlook is graver. Another factor which affects the prognosis is the time at which the operation is performed. On more than one occasion there has been reason to regret from the result of the operation that it was not done earlier.

In concluding I wish to acknowledge my indebtedness to Dr. J. Biernacki, medical superintendent of Plaistow Hospital, for his kind permission to publish the cases described in this paper.

MILK-SUPPLY OF BRISTOL.—At the Bristol police court on Jan. 18th the chairman of the magistrates remarked, whilst fining a tradesman for selling milk containing 12·59 per cent. of added water, that the milk-supply in Bristol was disgraceful, for the annual report of the Local Government Board for 1905-06 showed that 457 samples were taken and 101 were found to be adulterated, while in Manchester 1260 samples were taken and only 83 were found to be adulterated.

THE GLANDULAR EXTRACT FROM IMMUNISED ANIMALS AS A CURATIVE AGENT IN PLAGUE.[1]

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IT is a well-known clinical fact that the cases of plague which generally recover are those in which the glandular reaction is most marked, whilst the most serious cases are those in which the glandular reaction is hardly observable. It is also observed in the laboratory that marked pathological changes occur in lymphatic glands, liver, and spleen, especially in those animals in which the disease from some cause or other runs a chronic course. I found, for example, marked necrotic changes in these organs in animals partially protected with Haffkine's fluid, and afterwards dying from plague when subsequently infected with the bacillus pestis. These facts induced me to consider that the organs on which the plague poison exercises its concentrated effect may probably be the centres where the antibodies are manufactured in great quantity in case of recovery. In this way I was led to consider whether it was possible to use some form of glandular extract from immunised animals as a curative agent in plague. In order to test the practicability of this theory I carried out some experiments in Hyderabad in the year 1900 and found that the glands of the immunised animals, such as the liver, the spleen, and the buboes when finely minced aseptically, and treated with absolute alcohol for two weeks or more and then allowed to dry at the room-temperature, could be easily converted into a fine powder. The powder thus obtained when well rubbed down in a sterile mortar with a sterile normal salt solution yielded on filtration a clear straw-coloured liquid which seemed to possess curative power when inoculated into animals artificially infected with a culture of the bacillus pestis. But as the number of experiments carried out was insufficient to form a definite opinion, and as I had no opportunities to carry out further experiments in Hyderabad, I dropped the subject and did not publish the results. Last September, through the kindness of Professor Dunbar, I was enabled to repeat these experiments at the Hygienic Institute, Hamburg, and the results so far obtained seemed to be very encouraging.

The method which I have used in preparing the curative powder from the glands of immunised animals is as follows: Healthy rabbits are inoculated with Haffkine's prophylactic fluid to produce slight immunity, just enough to give them a start. For this purpose I use the supernatant fluid after the sediment consisting of bodies of dead bacilli has thoroughly settled down, as I had shown some years ago[2] that the filtrate from Haffkine's fluid is quite as efficacious in producing immunity as are the entire contents thoroughly shaken up together as recommended by Haffkine, and has further the advantage of not producing local mischief, such as hard indurated swelling at the seat of injection containing sterile pus. Haffkine's fluid is given subcutaneously on two occasions with an interval of about 12 days between the injections, and when the animals have thoroughly recovered from its effects, say in from 10 to 12 days, they are subsequently inoculated with a very small quantity of a weak culture of living plague bacilli subcutaneously, and again after an interval of 10 or 12 days a larger dose of the weak culture is introduced. Subsequently a virulent germ is substituted for the weak one, commencing with the small doses and then gradually increasing the doses, always allowing an interval of about a fortnight between the injections for the animals to recover, till they can withstand the whole quantity of plague germs which will grow on a surface of an ordinary Petri dish. I continue these immunisations until at last the animals can withstand one or two loops of very virulent plague germs given intravenously. Lastly, the animals when quite sound are killed with chloroform, generally 15 days after the last intravenous injection, for the preparation of the powder. Microscopic examination of the juice of glands of such animals did not reveal the presence of any bacteria and no growth was obtained on the media inoculated. It is thus seen that the immunity in these animals is really produced by the living bacilli and is far higher than the immunity which could be produced by dead bacilli or their products. The production of such an immunity, however, is much more difficult, as one has to be very careful in graduating the doses so as to avoid killing the animals. I find that it generally takes from four to six months to produce such an immunity. After the animals have been killed with chloroform, the glands such as the liver, the spleen, the buboes, and the suprarenals are removed, are finely minced aseptically and spread in thin layers in sterile glass dishes, and are allowed to dry over sulphuric acid in a hot-air chamber at 47° C. for a period of from three to six days. When the material is thoroughly dried it is well ground in a sterile mortar to a fine powder, after which it is placed in small sterile flasks plugged with cotton-wool and replaced in a hot-air chamber for about 24 hours. The powder is now ready for use. It forms a brown cloudy emulsion when well rubbed down in a mortar with warm sterile water and can be easily injected into an animal with a needle of somewhat large calibre. I found that the process of drying the organs with alcohol takes a much longer time in Hamburg than in Hyderabad. I have therefore adopted Klein's[3] method of drying the organs on account of the insufficiency of time at my disposal. I believe that the alcohol method and the use of larger animals would give better results.

The results of experiments with the gland powder thus prepared are given in a tabular form. Two strains of the bacillus pestis were used in the experiments, "Blagdon" and "Bishopsgate." The virulence of the former is such that one platinum loopful (two milligrammes) is sufficient to kill a white rat (200 grammes) in 24 hours, $\frac{1}{10}$th of a loop kills a similar animal in three days, $\frac{1}{100}$th of a loop in four days, and $\frac{1}{1000}$th of a loop in six days; while the virulence of the latter is such that $\frac{1}{10}$th, $\frac{1}{100}$th, and $\frac{1}{1000}$th of a loop will kill a white rat (200 grammes) in three, five, and seven days respectively. 50 animals on which the curative powder was administered were as follows: 16 guinea-pigs, 24 brown rats, and ten white rats.

In my experiments I have selected the introduction of plague virus in a subcutaneous pouch in the case of brown rats and by a cutaneous method in the case of guinea-pigs and white rats, as the cutaneous method in the case of guinea-pigs and white rats is a certain method of producing the disease, whereas the cutaneous method in brown rats is not so reliable as the subcutaneous pouch.

When working with the Blagdon strain the number of recoveries obtained were 50 per cent. in the case of brown and white rats when plague was given in a subcutaneous pouch to the former and cutaneously to the latter, as two (Nos. 2 and 3 (white rats) and 6 and 8 (brown rats)) out of four animals recovered in both instances. Whereas with Bishopsgate the recoveries obtained were 66 per cent., as eight (Nos. 26, 28, 29, 31, 32, 33, 34, and 36) out of 12 brown rats and four (Nos. 37, 38, 39, and 40) out of six white rats recovered when treated with the remedy. In the case of guinea-pigs the results were more favourable. Four were infected with Blagdon (recovered 3: Nos. 10, 11, and 12) and 12 with Bishopsgate (recovered 8: Nos. 13, 15, 16, 17, 19, 20, 21, and 24) cutaneously. Out of these 16 animals 11 recovered, giving a percentage of a little over 68 recoveries. In these animals one loop (two milligrammes) of agar culture of bacillus pestis of about 48 hours' growth procured directly from the smears of organs of animals dead from acute plague was used in every case and the curative powder administered varied from 100 to 250 milligramme doses. In nearly half of the cases the curative powder was given 24 hours after the infection and in others half an hour after the infection. When plague was given subcutaneously to brown rats the recoveries obtained were 50 per cent., as four (Nos. 43, 44, 46, and 47) out of eight animals inoculated with Blagdon recovered. Out of eight brown rats six had $\frac{1}{2}$th of a loop (Blagdon) subcutaneously and 150 milligrammes of the powder about half an hour after the infection and the remaining two brown rats had $\frac{1}{10}$th of a loop (Blagdon) and

[1] Report of a research carried out during the years 1905 and 1906 at the Hygienic Institute, Hamburg.

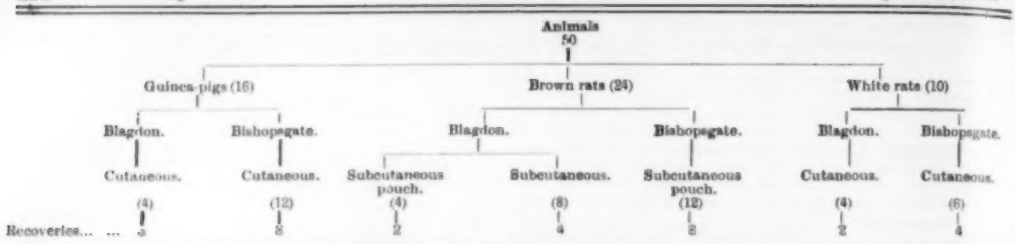
[2] Indian Medical Record, Jan. 3rd and 10th, 1900; Brit. Med. Jour., May 12th, 1900.

[3] Klein's Preliminary Report to the Local Government Board, December, 1905.

TABLE SHOWING THE RESULTS OF EXPERIMENTS ON PLAGUE AT THE HYGIENIC INSTITUTE, HAMBURG.

Number.	Animals.	Infection.				Days of infection.			Remarks.
		Strain.	Dose.	Method.	Date.	1 Dose of curative powder.	2 Dose of curative powder.	Day of infection on which death took place.	
1	White rat 5108	Blagdon.	1 loop.	Cutaneous.	5/5/06	120 mgm.	—	7th.	Died.
2	,, 5109	,,	,,	,,	,,	150 mgm.	—	—	Recovered.
3	,, 5110	,,	,,	,,	,,	—	200 mgm.	—	,,
4	,, 5111	,,	,,	,,	,,	—	250 mgm.	3rd.	Died.
5	Brown rat 5113	,,	,,	Subcutaneous pouch.	,,	120 mgm.	—	4th.	,,
6	,, 5114	,,	,,	,,	,,	150 mgm.	—	—	Recovered.
7	,, 5115	,,	,,	,,	,,	—	250 mgm.	4th.	Died.
8	,, 5116	,,	,,	,,	,,	—	200 mgm.	—	Recovered.
9	Guinea-pig 920	,,	,,	Cutaneous.	,,	150 mgm.	—	13th	Died.
10	,, 921	,,	,,	,,	,,	,,	—	—	Recovered.
11	,, 922	,,	,,	,,	,,	—	200 mgm.	—	,,
12	,, 923	,,	,,	,,	,,	—	,,	—	,,
	White rat 5112	,,	,,	,,	,,	Control.	—	3rd	Died.
13	Guinea-pig 927	Bishopsgate.	,,	,,	16/5/06	150 mgm.	—	—	Recovered.
14	,, 928	,,	,,	,,	,,	,,	—	11th	Died.
15	,, 929	,,	,,	,,	,,	,,	—	—	Recovered.
16	,, 930	,,	,,	,,	,,	,,	—	—	,,
17	,, 931	,,	,,	,,	,,	,,	—	—	,,
18	,, 932	,,	,,	,,	,,	,,	—	15th.	Died.*
19	,, 933	,,	,,	,,	,,	—	200 mgm.	—	Recovered.
20	,, 934	,,	,,	,,	,,	—	,,	—	,,
21	,, 935	,,	,,	,,	,,	—	,,	—	,,
22	,, 936	,,	,,	,,	,,	—	,,	9th.	Died.
23	,, 937	,,	,,	,,	,,	—	,,	10th.	,,
24	,, 938	,,	,,	,,	,,	—	,,	—	Recovered.
	,, 939	,,	,,	,,	,,	Control.	—	9th.	Died.
25	Brown rat 5147	,,	,,	Subcutaneous pouch.	,,	150 mgm.	—	7th.	,,
26	,, 5148	,,	,,	,,	,,	,,	—	—	Recovered.
27	,, 5149	,,	,,	,,	,,	,,	—	4th.	Died.
28	,, 5150	,,	,,	,,	,,	,,	—	—	Recovered.
29	,, 5151	,,	,,	,,	,,	,,	—	—	,,
30	,, 5152	,,	,,	,,	,,	,,	—	6th.	Died.
31	,, 5153	,,	,,	,,	,,	—	200 mgm.	—	Recovered.
32	,, 5154	,,	,,	,,	,,	—	,,	—	,,
33	,, 5155	,,	,,	,,	,,	—	,,	—	,,
34	,, 5156	,,	,,	,,	,,	—	,,	—	,,
35	,, 5157	,,	,,	,,	,,	—	,,	10th.	Died.
36	,, 5158	,,	,,	,,	,,	—	,,	—	Recovered.
	,, 5159	,,	,,	,,	,,	Control.	—	5th.	Died.
37	White rat 5175	,,	,,	Cutaneous.	21/5/06	150 mgm.	—	—	Recovered.
38	,, 5176	,,	,,	,,	,,	,,	—	—	,,
39	,, 5177	,,	,,	,,	,,	,,	—	—	,,
40	,, 5178	,,	,,	,,	,,	,,	—	7th.	Died.
41	,, 5179	,,	,,	,,	,,	,,	—	5th.	,,
42	,, 5180	,,	,,	,,	,,	,,	—	,,	,,
	,, 5181	,,	,,	,,	,,	Control.	—	—	Recovered.
43	Brown rat 5134	Blagdon.	1/3 loop.	Subcutaneous.	11/5/06	100 mgm.	—	—	,,
44	,, 5135	,,	,,	,,	,,	,,	—	4th.	Died.
	,, 5136	,,	,,	,,	,,	Control.	—	5th.	,,
45	,, 5161	,,	1th loop.	,,	21/5/06	150 mgm.	—	—	Recovered.
46	,, 5162	,,	,,	,,	,,	,,	—	—	,,
47	,, 5163	,,	,,	,,	,,	,,	—	6th.	Died.
48	,, 5164	,,	,,	,,	,,	,,	—	5th.	,,
49	,, 5165	,,	,,	,,	,,	,,	—	,,	,,
50	,, 5166	,,	,,	,,	,,	Control.	—	4th.	,,
	,, 5167	,,	,,	,,	,,				

* Bacillus pestis not found in any organ.



100 milligrammes of the powder about half an hour after the infection. An average-sized rabbit yields about 28 grammes of the powder. The smallest amount of the gland cure with which a positive result was obtained was 100 milligrammes in the case of brown rats.

The Laboratory, Hyderabad, Deccan.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF INFECTION DURING THE PUERPERIUM SIMULATING PSOAS ABSCESS.

BY WILLIAM AYRES, B.A., M.D. DUB.

ON April 25th, 1903, I attended a patient in her fifteenth confinement. I had attended three previous confinements. The labour was most uneventful. I arrived just in time to be present at the birth of the child. On the fifth day of the puerperium the patient had a rigor. The temperature was 99° F. and the pulse-rate was 100 per minute. I douched out the uterus and put the patient on a quinine mixture. I examined the uterus and adnexa most carefully but could find no reason for this rigor and as the temperature remained normal thought I was free from all trace of puerperal infection. On the twelfth day of the puerperium the patient began to complain of pain in her left leg which gradually got worse and the leg began to contract until the knee was at right angles to the body. The pain was relieved by suppositories of morphine. On the fifteenth day of the puerperium a small hard lump of the size of a Tangerine orange began to appear to the left of, and below, the umbilicus. This lump was very hard and immoveable and was thought to be an inflammatory swelling in connexion with the broad ligament pressing on the lumbo sacral plexus; it grew very slowly. The temperature never went beyond 99° and that was reached only once or twice; the pulse-rate was never beyond 100 per minute. On May 18th I had for private reasons to leave my practice and I gave instructions that a colleague should see the case in my absence if the pain became unbearable. My colleague came to the conclusion that the lump was of a cancerous nature owing to its hardness and immoveability and also the absence of any very definite temperature and pulse-rate. It was decided, therefore, as there was some doubt as to the exact nature of this lump to give the patient the benefit of an operation. After consultation Dr. F. Edge of Wolverhampton kindly undertook the operation, which was performed at the Nursing Institution, Wolverhampton, on June 9th.

After the preliminary laparotomy a hard lump was discovered behind the sigmoid flexure which was fixed but not involved anteriorly or laterally. As owing to its position removal of the mass if malignant was impossible and incision into it pregnant with danger should pus have been struck, as it would have had to drain through the peritoneal cavity, it was decided to await events and the abdominal wound was accordingly stitched up again. The uterus and adnexa were found to be in a perfectly healthy and normal condition. The patient stood the operation well and made a good recovery. The temperature several times reached 101° F. and the pulse-rate varied from 90 to 110. She seemed to be in rather a typhoid condition but at the end of three weeks she improved and went home.

There was no doubt as to sepsis of some kind but it was held to be due to mischief in the sigmoid flexure or infection of the mass from the intestinal canal but the mass was so hard and firm that the possibility of sarcoma was not excluded and the question was raised as to whether an artificial anus might not be required later.

Ten days after the patient's return home the lump suddenly disappeared from above the brim of the true pelvis and presented itself in Scarpa's triangle, where it was seen to be inflammatory, and was accordingly opened. The patient was up and about again in another two months.

The lymphatic glands involved were the left common iliac and lower lumbar glands and it is possible that the lesion in such cases is due to injury to the rectal tissues during labour.

A most interesting case of a similar nature has recently been reported by Dr. F. J. Watkins, professor of gynæcology at the North-Western University, Chicago, but there are so many points of difference in the two cases that perhaps a report of my case may be of interest to the profession.

I am indebted to Dr. Edge for the kind use of notes during the time that the patient was under his care.

Brierley Hill, Staffs.

A CASE OF RAYNAUD'S DISEASE.

BY JOHN REID, M.D. ABERD.

THE patient in the following case was a child, 14 days old, who presented marked puffiness of the eyes indicating ophthalmia neonatorum; there was also a redness spreading over the head suggestive of erysipelas. The digestive apparatus seemed to be good and the food was breast milk only. The hygienic surroundings were bad. On Jan. 4th the only treatment ordered was the application of flour to the skin. On the 5th a boric lotion was ordered for the eyes, which soon cleared, and as both thumbs were swollen and hard, suggesting osteomyelitis, mercury was given internally and applied to the thumbs. The toes next gave evidence of osteomyelitis and the left leg was also red in addition to being swollen. The child seemed tolerably well. On the 8th the symptoms of osteomyelitis disappeared and patches of gangrene were to be seen on the toes, fingers, and left forearm, previously red. The gangrene was in each case superficial. The child continued to take calomel in powder. The redness had left the head for some days. Only the big toes and thumbs had the appearance of chilblains, and there was redness round the gangrenous patch over the left forearm. The left ankle was markedly flexed, and the right ankle partially flexed. On the 10th when the child cried the sound emitted had a whining character and there were some laryngeal symptoms without fever. On the 11th the base of the left lung was found to be solid; the gangrene had, if anything, slightly retrogressed. Death occurred quietly about 8 P.M. The mother said that a former child of hers died somewhat similarly. I looked on the case as one of congenital syphilis without snuffles. The red skin preceding the gangrene is different from Raynaud's cases.

The local application of mercury to the myelitis seemed to have an almost magical effect judging from cases which I have seen treated by constitutional means only.

Walbrook, E.C.

VACCINATION GRANT.—Mr. John Hoole, M.R.C.S., has received the grant for successful vaccination for the Hartington district of the Ashbourne union.

HOSPITAL SATURDAY FUND AT PLYMOUTH.—During 1906 the sum of £627 was raised by the Hospital Saturday Fund for the South Devon and East Cornwall Hospital, Plymouth.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

On the de novo Origin of Bacteria, Bacilli, Vibriones, Micrococci, Torulæ, and Moulds in Certain previously Superheated Saline Solutions contained within Hermetically Sealed Tubes.—Idiopathic Cyanosis due to Sulph-Hæmoglobinæmia.

A MEETING of this society was held on Jan. 22nd, Mr. J. WARRINGTON HAWARD, the President, being in the chair.

Dr. H. CHARLTON BASTIAN said that early in the year 1906 he began to make experiments on the question of the origin of life with various saline solutions containing ammoniacal salts. After a time he found the best results were to be obtained with one or another of two solutions, one of which contained small quantities of sodium silicate, ammonium phosphate, and dilute phosphoric acid in distilled water, and the other a simple solution of sodium silicate with liquor ferri pernitratis in distilled water. It was found, also, that with the use of these saline solutions exposure of the experimental vessels to diffuse daylight, with even a mean temperature of only from 60° to 65° F., favoured the appearance of micro-organisms quite as much as, or even more than, darkness associated with an incubator temperature of 95° F. The solutions were placed in previously superheated tubes, which, after being hermetically sealed, were heated again in a calcium chloride bath to 239° F. (115° C.), 248°, 257°, or 266° F. (130° C.), for from 10 to 20 minutes. In all these tubes, after the process of heating, a small deposit either of silica alone or of silicate of iron was thrown down. The tubes were subsequently exposed either to diffuse daylight or else in the incubator, and mostly for periods varying from five weeks to four months. When opened the tubes were found to contain, in varying abundance, one or more kinds of micro-organisms, photographs of which were shown. One point of much interest in connexion with these experiments was the fact that no carbon was ostensibly contained in the solutions, though its close chemical ally silicon was always present. It had previously been determined that such solutions proved excellent nourishing media for the growth of micro-organisms, and this fact led to trials whether any evidence was to be obtained tending to show that such solutions could also actually engender living units. On examination of the contents of the tubes after their prolonged periods of exposure to light or in the incubator the organisms were always found, after careful search, on or within the substance of the flakes of silica, while the fluid above remained perfectly clear. The fluid would remain in this condition and quite free from micro-organisms, even for months after organisms were known to be swarming in the silica itself. Some of these organisms also were found in flakes of silica taken from tubes from which all air had been expelled by boiling at the time when they were hermetically sealed, so that, except for any carbonaceous impurity that may have existed in the distilled water or in the chemicals employed, no carbon would be contained within these tubes. And even in those tubes which did contain air this was always separated by a deep layer of the fluid itself from the deposit in which the organisms were contained. Many organic compounds had been discovered by chemists in which silicon wholly or in part replaces carbon; and it was contended that there was good *primâ facie* evidence from these experiments tending to show that silicon was capable of entering into the composition of protoplasm itself—that is wholly or in part taking the place of carbon. In regard to the major question, concerning the origin of life itself, the facts to be borne in mind were these: If a few hours after the heating of the tubes one or more of them were opened as "control" experiments, and the sediment carefully examined, no organisms of any kind were to be found; but, after suitable periods of exposure, organisms might be found, in more or less abundance, in the sediment taken from other similar tubes. The organisms were, moreover, always motionless; so they must have sprung up and multiplied in the sites where they were found. Then, again, it was important to bear in mind: (1) That, apart from "spores" of bacilli, no micro-organisms could resist an exposure of two or three minutes in boiling water, this being lethal for bacteria, vibriones, micrococci, torulæ, and moulds; and (2) that all ordinary spores of bacilli were killed by a similar exposure for a minute or two to 115° C. (239° F). It could only be concluded, therefore, that the bacteria, bacilli, vibriones, micrococci, torulæ, and moulds which had been taken from hermetrically sealed tubes previously heated to 115°, 120°, 125°, and 130° C. for from 10 to 20 minutes must have been engendered *de novo* within these vessels. The organisms that arose *de novo* were presumed by Dr. Bastian to assume well-known forms, for precisely the same reason that the various representatives of the crystalline world, *when they originated*, invariably fell into their own specific shapes and with surfaces always inclined to one another at angles that never varied for each particular species of crystal. The forms in each set of cases—in organisms and in crystals alike—might be regarded as the necessary resultants of the molecular constitution of their initial units in the particular media and surroundings in which they occurred.

Professor E. H STARLING said that there was much in the main thesis which Dr. Bastian had propounded with which he was in agreement. In the body the inorganic material taken in was elaborated into organic material—a change which was designated assimilation. Taking the simple sugars as an example it was only the dextro-rotatory which could be so assimilated while the invert sugar could not be so utilised. If they accepted the development of the higher forms of life from the lower forms then the process should not cease at the lowest forms of life and there should be no sharp line between what was regarded as living and what as dead. Even in the body the red blood cells were on the border line and these when killed by formalin gave reactions which were regarded as evidence of living cells. If protoplasm was formed, as Dr. Bastian had suggested, in a primitive form, it would serve as a pabulum for more highly organised bodies, and it was only under such conditions as Dr. Bastian had arranged that such early protoplasm could survive. In relation to Dr. Bastian's experiments the question arose as to whether the organisms which he showed were alive. He did not consider that this was proved and suggested that a plate-culture might demonstrate this, though even under such conditions the organism might be alive and yet not grow.

Dr. E.W. GOODALL said that he was not convinced that the tubes in which the experiments had been performed had been completely sterilised. He asked for proof that the organisms seen in the tubes were living.

Dr. BASTIAN, in reply, said that not only in the preparation of the tubes had they been subjected to a very high temperature, but also after being filled with fluid a temperature of 130° C had been used for 20 minutes, which all observers agreed was sufficient to destroy all organisms and spores. The evidences of life in the organisms were unmistakeable; not only did they increase in the tubes but they could be removed on to a slide and could, under suitable conditions, be seen to multiply there.

Dr. S. WEST and Dr. F. W. CLARKE communicated an account of a case of Idiopathic Cyanosis due to Sulph-Hæmo-globinæmia. The paper, which was illustrated by an epidiascope demonstration, will appear in full in a future issue.

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

Laboratory Meeting at the Lister Institute.

A MEETING of this society was held at the Lister Institute on Jan. 12th, Dr. C. J. MARTIN being in the chair.

Dr. J. HENDERSON SMITH read a communication on the Increase of Complement in Serum allowed to Stand in Contact with Clot. He pointed out that while immune serum had its full complement from the beginning, that of normal serum took several hours to develop, and that the increase in contact with clot was much greater than without it.—In the discussion following the paper Dr. J. A. CRAW remarked on the increase of opsonin, and Dr. E. W. A. WALKER on the increase in bacteriolytic power when the serum was left in contact with clot.—Dr. G. DEAN, examining 18 hours afterwards, could find no difference as regards opsonins.

Dr. J C G LEDINGHAM in a paper dealing with the Quantitative Relationship between the Globulin and the Antitoxin of Diphtheria Anti-serum, was inclined to conclude from a small number of cases examined that horses

showing a large amount of globulin might be discarded for purposes of immunisation as likely to prove unsatisfactory. He also showed how during the process of immunisation the globulin rises with the potency

Dr. CRAW and Dr. DEAN, in a conjoint paper on the Standardisation of Diphtheria Toxin and the Normal Variations in the Weight of the Guinea-pig, criticised the results of Arrhenius and Madsen with regard to the relations between lethal dose, lethal time, and weight of animal.

Dr. DEAN, in a paper on Further Experiments on the Nature of the Substance in Serum which Influences Phagocytosis, concluded that the number of organisms taken up by phagocytes in opsonic technique was directly proportionate to the concentration of the emulsion and that the complement corresponded with the opsonin of normal serum.

Professor R. MUIR and Dr. W. B. M. MARTIN continuing the researches the results of which were submitted to the society at Manchester last summer, read a short paper on the Combining Properties of Opsonin and Immune Serum. They found that substances which took up complement of normal serum also fixed opsonins. Heating brought out differences between opsonins of normal serum and that of immune serum, for whilst the former were destroyed at 55° C., the latter had something remaining constant. No substance combined with immune opsonin except the organism producing it. In addition to heat they used other complement absorbers, such as red blood corpuscles and immune body. Contrary to Bulloch's conclusions, they found that there was a fall in opsonic power when normal serum was treated with various organisms, whereas treatment had no effect on immune opsonin. They concluded that immune opsonins were real anti-substances. The question of their constitution—whether they were of the type of immune body or agglutinin—they left open.

Professor D. J. HAMILTON raised the question of the practicability of Multiple Immunisation. He spoke briefly regarding the results recently obtained in the West Highlands and South of Scotland and also in Ireland in endeavouring to immunise sheep against "louping ill," chorea paralytica, and diseases "A" and "B," the organisms of which he described at the Manchester meeting. The mortality, which had ranged from 15 to 50 per cent. (among non-immunised sheep), had fallen to 1·5 per cent. in animals immunised by the mouth. Fuller details were promised in the forthcoming report of the Agricultural Board.—Colonel LEISHMAN briefly stated that in researches on typhoid fever mouth immunisation seemed to give definite evidence of some immunising substance.

Colonel LEISHMAN, R.A.M.C., read a paper on Monkey Malaria, founded chiefly upon smear preparations from three monkeys brought back from Uganda by Bruce and on other films prepared by Greig in Uganda. The persistence of parasites in the blood was noticed, sometimes few, sometimes many; they were never absent, but no periodicity was observed. Free gametes, macrogametes, and intracorpuscular forms were met with. Rosette formation was never observed, and while Colonel Leishman did not suggest that such did not occur, he pointed out that the absence of such formation was remarkable. He thought that the fresh supply in the blood depended on an alternative mode of propagation—namely, that it was due to extrusions of chromatin from the macrogametes and that these extrusions became fresh malarial parasites.—Professor E. A. MINCHIN, remarking on Colonel Leishman's paper, said that such protozoa had three forms: (1) the male, practically all nucleus, which soon died off; (2) the indifferent form which was hardier and lasted longer; and (3) the female macrogametocytes, which by parthenogenesis (as suggested by Schaudinn) could give rise to the indifferent form.

Dr. S. MONCKTON COPEMAN and Dr. W. HAKE made a communication on the Presence of Hydrochloric Acid in the Stomachs of Mice Inoculated with Cancer.

Dr. M. S. PEMBREY spoke of the Effects of Exercise. He observed that there was an optimum temperature for exercise, that muscular exercise raised the temperature, and that it must be taken into account that the normal temperature might sometimes reach 100·5° F. He found that the blood pressure fell after exercise owing to dilatation of the peripheral vessels, and that though the depth of respiration was changed the rate practically did not vary.

Dr. J. B. LEATHES made a communication on Metabolism in Fever, in which he said that in fever induced by typhoid vaccine the total nitrogen, kreatinine, and especially uric acid were increased.

Dr. F. A. BAINBRIDGE and Dr. A. P. BEDDARD submitted the results of Experiments on Cats in which portions of the kidneys were removed at two operations. They failed to find any evidence that the kidneys influenced nitrogenous metabolism.

Mr. H. W. ARMIT read the results of his chemical researches on the Toxic Actions of Iron and Nickel.

Dr. J. S. HALDANE, Lieutenant DAMANT, R.N., and Dr. A. E. BOYCOTT submitted some Observations on Caisson Disease. While pressure *per se* had no effect, the ill-effects experienced were due to decompression setting free bubbles of air. As continuous decompression necessitated a considerable time, men working in caissons rebelled against it, and an endeavour was made to shorten the decompression period without adding to the risks. Instead of continuous decompression they found that decompression by "jumps"—great at first and then by slower and smaller steps afterwards—gave much better and safer results.

Professor J. LORRAIN SMITH contributed a supplementary paper to that submitted at Manchester on the Staining of Fat with Aniline Dyes. The method of staining fat by basic aniline dyes depended on the hydrolysis of neutral fat yielding fatty acid to unite with the colour base on exposure to air. The staining especially with methyl violet seemed to be permanent. He now obtained permanent preparations by mounting the sections in gum acacia. By using a saturated watery solution of Nile blue sulphate A he was able to differentiate fatty acid from neutral fat, the former staining red while the latter stained blue. The transitions between fatty acid globules and neutral fat globules could be brought out in certain conditions. A demonstration of the staining results was given by beautiful three-colour lantern slides prepared by Dr W. J. S. Bythell.

Dr. J. MILLER described the appearances found post mortem in an early case (seven days) of Acute Poliomyelitis. There was a soft swelling of the cord in the cervical region which gave on culture the staphylococcus pyogenes citreus. The various theories of causation were discussed but Dr. Miller favoured the view that the condition was inflammatory.

Dr. W. E. CARNEGIE DICKSON gave a lucid description of a unique case of Polyarteritis Acuta Nodosa. This he differentiated from periarteritis nodosa. The disease seemed first to start in the vessel wall (the muscle) and the thrombosis of the small aneurysms occurred secondarily. The paper was well illustrated and was supplemented by a microscopic demonstration. Though giant cells were found in the lesions no tubercle bacilli or spirochætæ could be observed by staining, yet the idea of inflammatory causation could not be put aside.—Professor MUIR contrasted the microscopic appearances with those of a case of polyarteritis nodosa described by Bruce and himself.

Dr. S. G. SCOTT and Dr. W. H. M. TELLING exhibited the specimen and read short notes on a case of Marginal Hæmorrhagic Necrosis of the Liver. The margin of the liver, except where in contact with the diaphragm, was of a much darker colour than the rest of the parenchyma and in this margin the liver cells had disappeared. The necropsy, which was unfortunately incomplete, was performed 18 hours after death and revealed no cause for this appearance.

Dr. F. G. BUSHNELL read notes on a case of Generalised Sarcoma. He was inclined to think that leukæmia might be regarded as a malignant reproduction of white blood cells.

Dr. C. POWELL WHITE and Dr. W. MAIR demonstrated an interesting case of Primary Malignant Tumour of the Liver. There were no metastases and the adrenals were normal. From its histological characters they concluded that it had arisen from a suprarenal rest in the liver. Though these rests are usually found in the right lobe this tumour was confined to the left.

Dr. F. CRAVEN MOORE gave a demonstration on a case of Endothelioma of the Stomach. He fully described a case and considered it to have arisen from the lymphatic endothelium of the submucosa.

The following demonstrations of specimens were given in various rooms by: Dr. MILLER on a case of Acute Poliomyelitis.—Dr. CARNEGIE DICKSON on Polyarteritis Acuta Nodosa.—Dr. TELLING and Dr. SCOTT on Marginal Necrosis of the Liver.—Dr. BUSHNELL on Generalised Sarcoma.—Dr. POWELL WHITE and Dr. MAIR on Adrenal Tumour of Liver.—Mr. H. G. PLIMMER on the Structure of Trypano-omes, along with a Simple Method of Obtaining Well-defined High Magnifications.—Professor MINCHIN on Division of Trypanosoma Grayi.—Dr C. J. MARTIN on a New Water-driven Centrifuge.—Dr. C. W. ROWNTREE on an Improved Method

of Mounting Museum Specimens.—Dr. A. G. GIBSON on Malignant Tumour of the Liver.—Miss MABEL FITZGERALD on Cultures of Trichophyta from Cases of Tinea.—Dr. I. WALKER HALL on Tumour of Recto-vaginal Interspace.—Dr. J. D. THOMSON on a Parasite in the Red Blood Corpuscles of the Mole.—Professor A. S. F. GRÜNBAUM on the Monkey Brain in Syphilis.

The next meeting will be held in June at Edinburgh.

EPIDEMIOLOGICAL SOCIETY.

Real and Apparent Differences in the Incidence of Cancer.

A MEETING of this society was held on Jan. 18th, Dr. JOHN F. W. TATHAM, the President, being in the chair.

Dr. E. F. BASHFORD (general superintendent of the Imperial Cancer Research Fund) read a paper on Real and Apparent Differences in the Incidence of Cancer. Having drawn attention to the great difficulty of recognising cancer clinically, and reviewed the differences in the recorded incidence of cancer in Europe, Japan, India, and other lands, and having discussed the reasons for the difference between England and Ireland, Dr. Bashford concluded that the magnitude of the differences was more apparent than real. The real differences that probably existed were obscured. It was pointed out that, contrary to general opinion, cancer was approximately as common a cause of death in Japan as in England and any weight attaching to the argument that the frequency of cancer was the result of European civilisation was thereby removed. One phenomenon of universal occurrence in civilised and uncivilised man, in domesticated and in wild animals, had more importance than all variations. The increasing frequency of cancer with advancing age was a law generally applicable to the vertebrates, whether the absolute length of life was short or long. The peculiar incidence of cancer in childhood was a special manifestation of the same law with reference to fœtal structures. The incidence of cancer in the different organs of the body was analysed with the object of eliciting whether there was a progressive increase to the utmost limits of life or a rise to a maximum followed by a fall as in the case of fœtal structures. The investigation of cancer could be profitably pursued statistically and experimentally either (1) from the standpoint that its incidence obeyed the definite biological laws which governed the growth and the length of life of organisms as a whole and of their individual organs because it arose *de novo* in each sporadic case; or (2) from the standpoint that the several cases occurring sporadically are causally connected by an infecting virus which produces its effects in conformity with the same biological law. The balance of evidence was stated to be in favour of the first view. Dr. Bashford concluded by expressing indebtedness for the assistance given by the Registrar General's office. In no other country had the national statistical office vouchsafed so much collaboration. In view of the fact that the only trustworthy estimation of the frequency of cancer was the national death-rate this collaboration was of unique value.

The PRESIDENT said that as regards the cure of cancer the consequences described by Dr. Bashford of the inoculation of mice with a quantity of tissue no larger than the point of a pin showed how rational was the modern surgical treatment of the disease. The early surgical removal of the small piece of tissue at the site of inoculation prevented the diffusion of the disease and the formation of secondary deposits in remote parts of the body. That evidence demonstrated the necessity for the prompt removal of the smallest growths as was now constantly advocated by surgeons and too often as constantly neglected by patients. There was little hope that within a reasonable time primary growths would be amenable to anything short of absolute removal. From the fact, however, that animals could be rendered unsuitable for the growth in their bodies of malignant processes, it was hoped that eventually the power of the resistance of the organism might be so far enhanced that the cells disseminated from the site of inoculation should be unable to grow. The manner in which carcinoma could be transmitted from individual to individual had now been so fully established experimentally as to be no longer in doubt. The experimental transference of the disease presented a striking contrast, for transference could be effected very much more readily to young than to old animals. That was an absolute contradiction to what might have been, and as a matter of fact was, expected. That difference between young and old animals was especially important in determining the conception of the etiology of cancer. The greater frequency of cancer in later life was not therefore due to increasing suitability for the growth of cancer. Mice could be protected against successful inoculation by preceding inoculation of cancerous tissue from another mouse, but not from an animal of another species. But the fact to which Dr. Bashford attached supreme importance, and which the President said surprised him greatly, was that an equally high degree of protection could be conferred by the inoculation not of cancerous but of perfectly normal tissue, healthy blood in fact, from one healthy animal into the body of another of the same species. That fact was pregnant with future possibilities.

Dr. J. F. PAYNE said it was startling to find that young animals were more susceptible than old animals. He did not think that the statistical returns from Scotland were so good as those from England and Wales. According to statistics the first years of life showed a high rate of mortality and he thought that was due to sarcoma being so common at that age. Dr. Payne called it infantile sarcoma. These sarcomata in the young were seldom pure and were probably of congenital origin. In regard to the statistics for deaths from primary cancer of the liver he considered that many of those should be ascribed to secondary cases of cancer occurring in the liver arising from primary cancer elsewhere.

Dr. A. NEWSHOLME said that by the statistical method of investigation it was shown that civilisation was not an essential factor in the causation of cancer. The occurrence of cancer in fish and in the lower animals was considered to be in the same proportion as in man and it was noticed that meat eating was not necessarily an essential factor in the causation of cancer.

Dr. F. W. ANDREWES emphasised the fact that in the early years of life the mortality from cancer was due in the great majority of cases to sarcomatous tumour, especially sarcoma of the kidney.

Sir SHIRLEY F. MURPHY said that it had been shown from the study of the figures in well-to-do and poor districts that the incidence of cancer in the rich and the poor was very much the same.

Dr. DAWSON WILLIAMS said that it was important to bear in mind the facts referred to by Dr. Payne in regard to what he had called infantile sarcoma. Attention had been drawn to the connexion between cancer and senescence, but the question arose also in regard to obsolescence. All through fœtal life the process of obsolescence was going on and continued in connexion with certain organs after birth.

Dr. BASHFORD, in reply, paid a high tribute of praise to the work of his colleagues on the Imperial Cancer Research Fund, and announced that Dr. J. A. Murray had prepared a microscopical demonstration of sporadic and experimental cancer in mice for the inspection of the members attending the meeting.

LIVERPOOL MEDICAL INSTITUTION.

Acute Hæmorrhagic Pancreatitis (Three Cases with Operations).—The Etiology of Inguinal and Femoral Hernia.—Ventrofixation of the Uterus.

A MEETING of this society was held on Jan. 17th, Mr. FRANK T. PAUL, the President, being in the chair.

Mr. W. THELWALL THOMAS read a short note on three cases of Acute Hæmorrhagic Pancreatitis operated upon with two recoveries. The first patient, a female, aged 56 years, was *in extremis* 35 hours after the onset of acute abdominal pain with vomiting, quickly becoming fæcal. On incision, under eucaine, blood-stained effusion escaped from the abdomen and the omentum was in a condition of fat necrosis. The patient succumbed a few hours later. Post mortem, hæmorrhagic pancreatitis was found. The second case occurred in a woman, aged 21 years, in whom the symptoms resembled perforation of a gastric ulcer, but with rise of temperature. The condition became rapidly worse and on operation fat necrosis of the omentum was found with copious effusion of blood-stained material into the peritoneal cavity. The lesser peritoneal sac was drained by a loin drain and an anterior tube as well as a tube into the pelvis. 35 gall-stones were removed from the gall-bladder and the latter was drained.

The pancreas was much enlarged but without hæmorrhages. The patient made an uneventful recovery. The third case which occurred was that of a man, aged 40 years. The onset was acute and a diagnosis of intestinal obstruction was made. There was a rise of temperature with slight vomiting and the abdomen became rigid and tender. On incision, 36 hours after onset, fatty necrosis in the extra-peritoneal tissue, omentum and mesentery was found. The gall-bladder, which was full of inspissated bile, and the peritoneal sac were drained as in the previous case. The pancreas, which was very much enlarged and hæmorrhagic, was incised. The patient made a good recovery, but with a pancreatic fistula which remained open for six weeks. Mr. Thomas then discussed the etiology and treatment of the disease.—The cases were discussed by Mr. R. W. MURRAY, Mr. G. S. STANSFIELD, and Dr. A. G. GULLAN.

Mr. R. W. MURRAY read a note on the Etiology of Inguinal and Femoral Hernia, based on a series of post-mortem observations made upon 200 persons in whom during life there was no evidence or history of hernia. Amongst the 200 bodies examined, 68 peritoneal diverticula were found, 52 in the femoral and 13 in the inguinal region. Arguments were advanced in favour of the saccular theory of hernia, and Mr. Murray contended that all the evidence they at present possessed was in favour of the belief that a preformed sac is the essential cause of inguinal and femoral hernia at all periods of life.—Dr. T. R. BRADSHAW said that granting that an oblique hernia came down the inguinal canal, a direct inguinal hernia could not have such an origin. One important clinical fact made it difficult for him to accept the view that the tunica vaginalis was frequently found communicating with the peritoneum in persons who were not the subjects of hernia—viz., the extreme rarity with which the fluid of ascites was found in the tunica vaginalis. He had only once seen such a case, more than 20 years ago, and in that case the fluid could easily be made to pass from the tunica vaginalis into the abdomen, or *vice versâ*, by changing the patient's position.—Mr. Murray's paper was also discussed by the PRESIDENT, Mr. F. C. LARKIN, and Mr. K. W. MONSARRAT.

Dr. HENRY BRIGGS read a paper on Ventrofixation in the Treatment of Backward Displacements of the Uterus. The exemption of the "blooming, happy, and fertile" woman from any treatment whatever was claimed. During the child-bearing period of life he advocated the limitation of pessary treatment to recent cases of retroversion or retroflexion after manual reduction of the displacement, and for chronic backward displacement of the uterus with complications he urged the superior position of ventrofixation and founded his opinion upon the clinical records and the after-histories of 203 cases treated by him during the past seven years. In all the 203 cases the patients recovered. The after-histories of all the patients, with the exception of the nine unobtainable and a few too recent to be of value, were added. An analysis of the cases in the five groups, A, B, C, D, and E, illustrated the extent and character of the complications of backward displacements of the uterus. Table A: 98 cases of backward displacement before operation were characterised by (*a*) uterine descent in a minor degree in all of them; (*b*) ovarian prolapse, on one side 13, on both sides 26; (*c*) inflammatory cystic changes in the ovary, 3; and (*d*) apoplexy and thickened capsule of the ovary, 6; and were treated by ventrofixation of the mobile uterus; the relief afforded was complete in 64, partial in 22, and disappointing in 7 patients; one single woman, aged 23 years, who had suffered from distressing dysmenorrhœa since puberty, was totally unrelieved by ventrofixation performed after a previous dilatation and section of the cervix had also failed to relieve her. Table B: 41 cases, ventrofixation with perineorrhaphy, colporrhaphy, trachelorrhaphy, dilatation, and curettage, i.e., a combination of two or more operations of which one was ventrofixation, showed relief complete in 24 partial in 9, and disappointing in 5 patients. Table C: 24 cases ventrofixation with separation of adhesions and in seven instances salpingostomy (conservative operations); recorded relief complete in 13, partial in 8, and disappointing in 1 patient. Table D: 31 cases, ventrofixation with removal of one tube and ovary; relief complete in 20 and partial in 7 patients. Table E: 9 cases, ventrofixation with removal of both appendages; relief complete in 7 and partial in 1 patient. Complete relief after ventrofixation persisted throughout all the groups in almost the same proportion of cases. That is substantial evidence of a pathological element in the aggregate of the backward displacements in Table A. The lowest proportion of complete relief followed the total conservative treatment of pelvic peritonitis, due probably to obscure, active or latent, germ infection: (Table C) in 24 cases pregnancy is unknown after operation, except in one instance. Dr. Briggs then explained his preference for purely parietal peritoneal fixation at the summit of the empty bladder at the lower end of a two-inch abdominal incision ending one inch above the pubic symphysis. The Trendelenburg position enabled the operator to suture closely this central lowest portion of the parietal peritoneum to the middle two-fourths of the lower half of the anterior surface of the uterine body, in which the sutures were planted through muscle one-eighth of an inch deep. No. 2 Chinese silk was used for the fixation. Dr. Briggs said he had discontinued since 1903 catgut for this purpose only. The abdominal wound was closed in three layers by catgut sutures, the finest catgut always for the skin. The advantages of peritoneal fixation were the slight uterine mobility it insured; in the latter advantage Dr. Briggs agreed with Küstner and the further advantages of less inconvenience to the bladder and the ease and safety of subsequent labour and pregnancy were realised. Dr. H. Russell Andrews, in his digest in 1905 of all ventrofixations then published, had found the least interference with labour after peritoneal fixation. Amongst Dr. Briggs's cases in Table A alone 22 women had borne 32 children; normal labour was the rule and easy forceps delivery the exception. In one patient who had had five children (twins once) since the operation uterine inertia during the third stage had been observed and was not noted before operation by Dr. J. Masson of St. Helens. Dr. Briggs said that cervical and intra-uterine, vaginal and perineal complications were advisedly treated if necessary before the abdomen was opened, that abdominal section dealt with the peritonitic bands and their causes, and that ventrofixation completed a safe and satisfactory operation for retroversion or retroflexion during the child-bearing period of life.—Dr. T. B GRIMSDALE thought that the title of the paper exaggerated the importance of the backward displacement of the uterus and seemed to imply that all the symptoms were due to the backward position of the uterus, whereas all of the cases referred to showed other pathological conditions which were in all probability responsible for the symptoms present, the backward displacement being merely an incident in the case. As to the operation of ventrofixation itself, it was safe and effective if properly performed, though the holding capacity of the bladder seemed to be diminished slightly by it.—Dr. W. BLAIR BELL thought that the pathology of retroversion and retroflexion was not always the same. He had applied his own views to Dr. Brigg's statistics and found there much to support those views; for instance, he found that of the total failures 75 per cent. were in single women, and further, that of the cases, whether single or married, complaining of menorrhagia 85 per cent. were completely cured, while only 62 per cent. of the total number of cases were cured. These facts he considered important, as were some others to be deduced from the figures. He (Dr. Bell) thought all forms of ventrofixation unsurgical and dangerous, particularly the operation of peritoneal attachment described. He much preferred Gillian's operation, which he had now performed in a modified form for over a year, or one of his own, first performed in March last, in which a loop of round ligament on each side was brought through the broad ligament and fixed behind the uterus, an operation which had been recently independently described.—Dr. ARTHUR J. WALLACE remarked that ventrofixation was not a scientific procedure, but in default of a better it was satisfactory in that it relieved the patient. The principal drawback was that between the utero parietal attachment, the abdominal parietes, and the bladder there existed a potential opening or tunnel through which a loop of intestine might pass and become strangulated. A perfect procedure should bring about the formation of a complete peritoneal septum between the uterus, the bladder, and the abdominal wall. When the direct utero-parietal attachment stretched a little, as it appeared to do usually, there would result a kind of anterior mesometrium dividing the utero-vesical pouch into two halves, without any opening through which intestine might pass.—Dr. J. E. GEMMELL, Dr. E. T. DAVIES, and Dr. BENNETT also took part in the discussion on the paper.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Loss of the Stereognostic Sense.—Some Improvements in Cutaneous Therapeutics.—Electrical Conductivity of the Blood and Urine in Health and Disease and as a Test of the Functional Efficiency of the Kidney.—Some Cases treated by Bier's Method.—Notification of Infectious Diseases.

A MEETING of this society was held on Jan. 16th, Dr. J. O. AFFLECK, the President, being in the chair.

Dr. BYROM BRAMWELL exhibited a case showing Loss of the Stereognostic Sense. The patient, a man, aged 37 years, on Jan. 30th, 1905, was struck on the left side of the head with a heavy stone. He remained unconscious for four days. There was a large hæmatoma over the left side of the head, but no fracture of the vault could be made out. It was thought, however, that the base of the skull had been fractured because of hæmorrhage from the left ear. Weakness of the right arm persisted for some time. Later the speech became stammering in character. He remained in hospital for some time. There were marked disturbance of sensation in the right hand, imperfect localisation, also disturbance of sensation to pain, heat, cold, &c., and total inability to determine what was in his hand when his eyes were closed (stereognostic sense). Under suggestive treatment speech improved. On Nov. 24th, 1906, he returned with stammering speech and loss of sensation over the whole of the right side; there was no wasting of the muscles. On shaving his head a distinct depression was seen over the left parietal bone behind the motor areas and closely corresponding to the area for the stereognostic sense. The question remained if a section of bone be removed to relieve any compression which might exist.

Dr. W. ALLAN JAMIESON, under the head of "Some Improvements in Cutaneous Therapeutics," showed: 1. Epicolloid and its Combinations. He said that in 1893 Dr. Leslie Phillips directed attention to a proprietary substance called "Kristaline," a celluloid varnish which was used to give a transparent and indestructible protection to metal ornaments as a colourless film which prevented oxidation. This he stated was a solution of pyroxylin in wood naphtha or methylic alcohol. It had a peculiar odour, recalling that of amyl nitrite or pineapple drops. This he recommended as a substitute for collodion but it never obtained the notice which it deserved. Much more recently a similar preparation, having the attractive name of "New Skin," had been introduced and had a considerable reputation and sale. At Dr Jamieson's request Messrs. Duncan, Flockhart, and Co. had prepared a solution of pyroxylin in acetic ether, to which they have given the provisional name of "Epicolloid." This had been tinted a pale pink in order that it might more nearly approximate the colour of the skin. It had the advantage over collodion, even the flexible sort, that, drying more slowly, it formed a closely adherent, smoother, finer, more pliant, and impervious coating, firmer than "New Skin" and less pungent than "Kristaline." It was useful when any abraded surface, after purification, called for sealing up, and particularly so in the treatment of the troublesome cracks in the lips, so apt to occur in the central commissure or at the angles. If a thicker layer was required and opacity was not objected to, this combination with oxide of zinc would be found handy and was adapted for the early stage of herpes zoster. Salicylic acid could be incorporated with it, and in this form it was appropriate for warts and corns. 2. Ichthyol Court Plaster. Dr. Jamieson said that sometimes they wanted a dressing of a more solid kind, and for such cases a thin plaster was the most efficient. British court plasters were all, in his experience, spread on too thick a silk, hence they could not be got to lie close enough to the surface; they tended to curl up, and in all cases soon separated or washed off. He had found the ichthyol court plaster quite an ideal one, especially for small spots of rodent ulcer after scraping and cauterisation with fused chromic acid. A piece of this slightly moistened, adjusted, and pressed down formed a covering scarcely noticeable. It would adhere for days, and it was essential for the success of this method that the part should be kept dry and undisturbed. Applied to the red portion of the lip, it was indistinguishable from the natural surface. There were many other uses for which these articles could be employed, but to enumerate them would lead into too long a dissertation.

Dr. DAWSON F. T. TURNER read a paper on the Electrical Conductivity of the Blood and Urine in Health and Disease and as a Test of the Functional Efficiency of the Kidney. He said: It would appear from the observations, now some 1000 in number, that the observed resistance of a normal urine amounts to about 250 ohms in this apparatus (specific resistance 42·5 ohms), and from experiments on artificial urines it was found that the resistance depends only upon the ionic concentration—i.e., upon the salts, acids, and bases, and of these NaCl is by far the most important; the resistance for practical clinical purposes can be regarded as being unaffected by the presence of albumin, sugar, blood, and other non-electrolytes. In health the resistance is low, and the lower it is, other things being equal, the healthier the condition. In certain acute and chronic diseases a very high resistance is found constantly present. Acute croupous pneumonia is an example of the former and diabetes mellitus of the latter, but the resistance is also high in kidney disease and in pernicious anæmia. The resistance of the urine may rise in a characteristic way during an attack of sick headache. Within the last ten years I have made many attempts to measure the electrical resistance of the blood; various methods (dilution with distilled water, measurement of the resistance of a column of blood in a capillary tube, &c.) have been employed and subsequently rejected. The principal difficulty depends upon the fact that only very small quantities of blood can generally be obtained at one time. The best and most recent results were obtained by placing five cubic millimetres of freshly drawn blood between two cup-shaped electrodes, three millimetres in diameter, coated with spongy platinum, and fixed at two millimetres apart. The length of the cylinder of blood between the electrodes is of less importance than its diameter, because the cross sectional area varies with the square of its diameter and the resistance of a conductor varies directly as its length and inversely as its cross sectional area. By employing electrodes of fixed diameter and at the same distance apart and the same quantity of blood for each observation, and by making the measurement at once, before such changes as coagulation or evaporation could occur, fairly consistent results were obtained. Still, as in all blood-measuring operations, practice and the personal equation come in. The average observed resistance of normal blood measured in this way is 900 ohms, but it may fall to 700 or rise exceptionally to 1600 (specific resistance about 150 ohms). The resistance depends again upon the salt concentration of the blood and upon the relative volume of the corpuscles to the serum.[1] These have opposite effects. Thus, the greater the salt concentration the lower the resistance, but the greater the number of red cells present the higher the resistance. A blood of high resistance indicates that the proportion of salts in the blood is small or that the proportion of corpuscles present is large. Hence, a high resistance of the blood but a low resistance of the urine is indicative of health. Changes are to be observed in disease and those changes are in the direction of a diminished resistance; thus in kidney disease, in chlorosis, anæmia, and in pernicious anæmia, the resistance will be found to be low and sometimes, as in pernicious anæmia, very low, even to less than half that of normal blood. In these conditions the blood we must conclude contains fewer blood corpuscles or more salts or both. We can throw light on this question by counting the blood corpuscles and by examining the resistance of the urine; the latter will, as already explained, be found to be high. Dr. F. C. Hopkins (Guy's Hospital Report for 1891) reports that the salts were deficient in the urine in five cases of pernicious anæmia which he examined. Proceeding in this way I was led to compare systematically the resistance of the blood and the resistance of the urine and to originate a ratio which after consultation with Dr. G. A. Gibson he has termed the "hæmo-renal salt index" or the ratio of the electrical resistance of the blood to the electrical resistance of the urine. In health this would be equal to three, four, or five whole numbers—viz., $\frac{900}{225} = 4$. The higher this number is the healthier, other things being equal, is the condition of the patient. If the index increases it indicates that the blood contains fewer salts or is richer

[1] Dr. Turner expressed his indebtedness to Professor G. N. Stewart for drawing his attention to the part which the blood corpuscles play in altering the blood resistance, and to Mr. T. M. Wilson's conductivity measurements and cryoscopic observations.

in corpuscles, and that the urine contains more salts and that the functional activity of the kidney is increasing; if the renal index diminishes then the kidney is becoming sluggish and less efficient. Dr. Turner narrated several cases to illustrate the fact that where the index figure was low the kidney was inefficient and frequently diseased as proved by subsequent operation. It would probably be found in the future that the method would be of even more value in surgical affections of the kidney in order to ascertain the renal capacity before deciding whether to undertake an operation. He had not had sufficient opportunities of comparing the method with cryoscopy to permit him to draw any conclusions as to their relative value; in the case of Mr. C. A. Cathcart the indications of both methods were in agreement, but he would point out at any rate that this was a much more rapid method of clinical diagnosis than cryoscopy and that it was another example of the application of precise scientific measurement to clinical medicine and surgery.—The PRESIDENT, Dr. HARRY RAINY, and Mr. J. M. COTTERILL took part in the discussion which followed.

Dr. T. M. BURN-MURDOCH read a note on Some Cases treated by Bier's Method. The practical nature of the following short notes on some cases treated by Bier's method, he said, was his excuse for bringing them before the society, as they afforded additional proof of the value of Bier's method to the general practitioner. The first case was that of a lad suffering from an injury to his shin, the result of a knock against a form received on Jan. 18th, 1906. He was first seen on the 20th when he complained of acute throbbing pain over the centre of the tibia with swelling of the part. A superficial grazed wound was present. His temperature was normal. By evening his temperature had risen to 102·2° F., his pulse was 120, and pain was acute. The symptoms so resembled those indicative of an acute osteitis or quite probably an acute osteomyelitis that it was thought an operation would be necessary to check the disease. Mr. Cathcart saw him with Dr. Burn-Murdoch late at night and suggested applying Bier's bandage and postponing operation. This was done and the temperature steadily fell, becoming normal on the 23rd and remaining so with the exception of one slight rise. The pain subsided immediately after the application of the bandage and the boy slept fairly well. Slight subperiosteal suppuration occurred but no operative treatment was necessary. The boy made a rapid recovery, re-entering school in about a month's time. The second case was that of a lad who was seen first on May 30th at 4 o'clock in the afternoon on account of pain and tenderness in the lower end of the tibia. The temperature was then 100·2°. By 9 P.M. the temperature had risen to 103 5°. The pulse was 120 and the pain was acute and throbbing. The pain was localised to about three inches of the lower end of the tibia. It was thought the case might require surgical interference so Mr. Cathcart was asked to see him. He concurred in the diagnosis of acute osteomyelitis, but thought Bier's bandage might safely be tried. This was done with marked relief of all symptoms. The pulse on the 31st—the day after the application of the bandage—ranged from 74 to 98. The temperature did not exceed 102°. On June 1st the pulse did not exceed 90 nor the temperature, 101°. By the 8th the temperature and pulse were normal, both having come down gradually. On June 21st slight periosteal thickening remained at the lower end of the tibia with very slight pain on pressure. The boy re-entered school about five weeks from the commencement of his illness. The third case was one of obstinate ulcers of the leg. The patient, a female, was first seen in the summer of 1905 for incipient ulcers of the leg. These ulcers were preceded by nodular swellings which gradually softened, became blue-red in colour, and then broke down, leaving indolent tuberculous looking ulcers with callous edges. Dr. Burn-Murdoch recognised them as similar to a series of very intractable sores he had twice had to treat in a man with a marked tuberculous history, as evidenced by cicatrices about the neck and axillæ. They occurred both on the patient's back and legs. The results of innumerable kinds of treatment, including some suggested by a consultant, proved so unsatisfactory that it was decided at once to send the patient in question to Chalmers Hospital, where she went on August 8th, 1905. Many kinds of dressings were applied without benefit. On August 22nd the ulcer was excised, or probably two of them. No tubercle bacilli were found. The healing process was not satisfactory and soon broke down, necessitating scraping on Sept. 6th. On Nov. 13th the patient was discharged with the ulcer not fully healed and an unhealthy tuberculous-looking scab was also present. The wounds almost immediately opened up again. She spent a short time in Edinburgh but was sent to Callander for about three months during December, January, and February. The late Dr. MacLaren, to whose care Dr. Burn-Murdoch sent her, urged the importance of rest and open-air treatment, and subsequently informed the latter that she had had an attack of pleurisy from which she recovered well. She returned to Edinburgh early in March with an ulcer of about the size of half a crown on the leg. She sought hospital advice and was advised to have another operation but would not consent. Dr. Burn-Murdoch saw her on March 7th and employed ordinary cleansing dressings to the wound, making her rest in bed. After a few days Bier's bandage was applied with the most beneficial result. The ulcer, which he had despaired of healing, closed over in, to him, an astonishing manner in ten days. She was able to go to Orkney in the first week of April. Dr. Burn-Murdoch heard from her only the other day that the ulcers remained soundly healed. He had had several cases of acute osteomyelitis with symptoms similar to those described in Cases 1 and 2 operated on with the happiest results, but the period of time that the patients took to convalesce and which elapsed before they could return to work greatly exceeded that in the cases described. The history of the ulcer case, of course, spoke for itself.

Dr. ALEXANDER JAMES read a note on the Notification of Infectious Diseases. He said that he was one of the practitioners who believed that in the causation of phthisis infection was a factor of such relatively small importance that the compulsory notification of this disease as an infectious disease was, in the majority of cases, quite unnecessary. Further, he was one of those who held that its compulsory notification in all cases would be mischievous as diverting attention from the most important factors in its causation and would be harsh and cruel to the individual, as it would handicap still more heavily those who were struggling against their infirmity to earn their living. The gist of the argument of those who were in favour of the compulsory notification of phthisis was as follows: Granting that the tubercle germ was present in a large number of healthy individuals (from 40 to 90 per cent.), and granting that a lowering of the general nutrition gave this germ its power to produce its ravages, yet if notification were insisted on this germ would in time be stamped out and thus, however low the general resistance might be, the germ would not be there to make matters worse. In Edinburgh the compulsory notification of infectious diseases had been in force for over 20 years and thus they could compare the mortality from such diseases for periods of years before and after notification. They might therefore form an idea of what notification had done in the way of prevention. Taking phthisis mortality first the chart exhibited showed that it had undergone a very distinct and marked diminution and this was due to the gradual and progressive improvement in the condition of life of the people in the three towns (Edinburgh, Dundee, and Aberdeen). The improvement in the mortality from typhoid fever was gradual but not so marked as in the case of phthisis. The same was true with the group of diphtheria and croup, but again it was difficult to detect any distinct improvement during the notification period. With scarlet fever improvement was also shown but in this case the indications were that notification had produced improvement. With measles it was obvious that after notification and efforts to stamp the disease out the mortality had actually increased. Dr. James said that notification and efforts to stamp out the germ had at least not been so successful as was anticipated and that the improvement had not been at least more marked than it had been in the case of the phthisis mortality without notification at all. Such being the results of notification what was to be expected of a similar notification and efforts to stamp out the germ in the case of pulmonary phthisis? 1. Differences of opinion existed as regards the mode of entrance of the tubercle germ into the human body; some, like von Behring, believed that it entered mainly in infancy with the milk from tuberculous cows; others, like Koch, believed that the disease was caused mainly by inhalation of particles from dry tuberculous sputum suspended in the atmosphere. It was evident that, according to the first view, notification of phthisical patients

was unnecessary; according to the second, tubercle in dairies might be neglected. There were some also who believed that though the tubercle germ could not arise *de novo*, yet as a result of unhealthy conditions its virulence might be sometimes *de novo*. What Dr. James wrote 15 years ago he still believed in, that "you may kill off every tubercular cow, you may banish every phthisical patient, the conditions of life of men and cows remaining the same, you will have tubercular diseases back again in six months." 2. There were differences between the phthisis germ and the germ of those other infectious diseases in that the tubercle germ having entered the body only did harm when the individual was, or got into, a lowered state of health. The individual, therefore, might never suffer from phthisis at all, or, if he did, his illness might come on at times and places when and where there were no tubercle germs in his surroundings at all. As far as directing attention to the source of his disease is concerned notification might be useless and misleading. 3. Efforts made to treat pulmonary phthisis by combating the germ in the manner in which such truly infectious diseases as rabies, diphtheria, and tetanus are treated have been found to be not only useless but disastrous. Many could remember the confident and high hopes engendered by the tuberculin treatment of Koch. It seemed to Dr. James that the same type of mind which predicted triumphant success in the case of this treatment directed to the germ was to be discerned in those who now as confidently predicted the benefits to be obtained from notification and efforts to stamp it out. It is well known that the effects of the original tuberculin treatment were disastrous. This tuberculin was now known as the "dangerous tuberculin," and its use now in the method advocated 15 years ago would render its employer liable to a charge of manslaughter. It was stated that the profession was unanimous in favour of notification. Dr. James said that this was simply not true. Everyone admitted that notification and what it entailed had advantages, but they must also acknowledge that it had weaknesses and disadvantages. Dr. James thought that if they balanced these evenly they would agree in advising that compulsory notification of pulmonary phthisis was necessary in all cases where the patient's circumstances and surroundings formed a menace to the public health. Unsparing efforts to improve the conditions of life of the people at home and at work will be certain at one and the same time to increase the resisting power of the individual against the germ and to destroy the virulence of the germ itself.—Dr. BYROM BRAMWELL stated that 53 of the largest cities in America had adopted the compulsory notification of phthisis, and that the procedure was already in action in these towns. The leading American physicians were thoroughly convinced of the necessity for compulsory notification. The sources of the tubercle bacillus were from human beings or from bovine and lower animals. In practice, however, the real source was from the sputum. If they could disinfect and destroy the tubercle bacilli they should go far to eradicate phthisis.—Dr. T. F. S. CAVERHILL said that with the same facts as Dr. James had employed he had arrived at exactly opposite results. It was easy to stamp out tubercle in animals. In the human being the infection might be slight but then it was continuous, acting for months or even years. He thought that the great increase in the number of cases of infectious diseases was due to the greater movement of the populace now as contrasted with former periods.—Dr. GEORGE HUNTER and Dr. S. MACVIE (Chirnside) also took part in the discussion, and Dr. JAMES replied.

BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.—A meeting of this society was held on Jan. 4th, Dr. R. H. Woods (Dublin), the President, being in the chair.—Mr. Charles J. Heath showed a further series of cases illustrating the successful treatment of Chronic Suppuration of the Middle Ear without removal of the drum or ossicles or loss of hearing.—Mr. H. Clayton Fox asked wherein Mr. Heath's operation was superior to that method of Schwartze which consisted in clearing out the antrum and its environs and syringing through into the tympanum without the disadvantage of having to remove the posterior meatal wall. He expressed a fear that the adhesions left after Mr. Heath's operation would induce tinnitus at some future date and necessitate ossiculectomy.—Mr. Heath replied that trustworthy information as to the state of the tympanic cavity could not be obtained through the intact meatus. Only after removal of the posterior meatal wall could efficient investigation of the tympanum be carried out. Herein lay the superiority of his operation to that modification of Schwartze's operation mentioned by Mr. Clayton Fox. From the information thus obtained the surgeon could decide whether the case was one which called for the complete radical operation, or one where the modification suggested by himself would suffice. The cases which he exhibited on the present occasion included, besides instances of ordinary suppuration of the middle ear, two cases of attic suppuration with perforation in Shrapnell's membrane, one case of facial paralysis, and one case in which ossiculectomy had previously been performed without remedying the suppuration. The antrum was the key to the position in nearly every case of suppurative ear disease, and if the disease in that cavity were cured the morbid changes in the attic and tympanum would disappear spontaneously.—Mr. Mayo Collier showed a case of Extensive Epithelioma of the Floor of the Mouth, beginning in the frenum linguæ, which he had removed, along with the submaxillary glands, by a new method of operation.—Mr. Harold S. Barwell showed a case of Tuberculous Ulceration of the Pharynx in a male, aged 17 years. The patient was the subject of pulmonary tuberculosis in an early stage affecting both upper lobes. The ulcer manifested typical tuberculous characters; it had a flat, smooth, pale floor with edges not infiltrated. The larynx was healthy.—Mr. W. J. Chichele Nourse said that he had recently seen a case of tuberculous pharyngeal ulcer which was deep with raised edges, exuberant granulations, and marked scarring, quite like a gummatous ulcer. There was no history of syphilis, however, and a scraping from the ulcer contained tubercle bacilli.—Mr. Barwell exhibited a case of Gumma (?) of the Larynx, which was shown at the last meeting, and in which a rounded soft swelling over the right thyroid ala had been opened and the cavity curetted. On laryngoscopic examination little change was to be detected in the tumour. The external wound had healed. The microscopic appearances of the tissue removed were suggestive of carcinoma, according to Dr. Robert S. Trevor and Dr. V. H. Wyatt Wingrave.—Mr. Nourse exhibited a case of Multiple Sinusitis showing the result of Radical Operation. He said that the disease had probably begun in the left ethmoidal region and had led to symptoms of left frontal sinusitis. On opening the frontal sinus the cavity was found to be very small and packed with greyish mucus. At a later date the left antrum was radically dealt with through an opening in the canine fossa, and at this operation the ethmoidal region was cleared through the inner wall of the antrum. The result both as regards the suppuration in the nose and the external scar was excellent.—The President drew attention to the rule sometimes laid down that a complete and entire removal of the anterior frontal sinus wall was necessary to insure the success of the operation. He, however, believed that as much, and no more, of the anterior wall should be removed as would give complete access to the cavity, so that the whole of the diseased lining membrane could be removed. If that were effectually done, as he found in his cases, the sinus being left open would heal up from the bottom in from six to eight weeks. Unless the bone around the fronto-nasal duct was diseased he did not enlarge that canal.—Mr. Nourse, in reply, said that he agreed with the President as regards the removal of the anterior sinusal wall but differed from him in regard to the external wound, which he was in the habit of closing, while he inserted a large drainage-tube into the infundibulum long enough to extend from the frontal sinus through the infundibulum to a little beyond the nostril so as to prevent re-infection of the sinus from the nasal cavity.—Mr. Mayo Collier read a communication dealing with a case in which a hard mass in the floor of the mouth, consisting of a large tuberculous gland with nodules of hard fibrous tissues, had been mistaken for a salivary calculus by himself and several other surgeons.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—A meeting of this society was held on Jan. 14th, Dr. J. Lindsay Steven, the President, being in the chair.—Dr. G. H. Edington showed a specimen of a Perforated Peptic Ulcer of the Jejunum occurring after gastro-enterostomy. The patient, a male, aged 46 years, was operated on seven years previously by Dr. T. K. Dalziel for pyloric obstruction with symptoms of six years' duration, an anterior gastro-jejunostomy being performed. Five years

later Dr. Dalziel removed a gall-stone from the cystic duct. The patient remained free from all stomach symptoms after the first operation. Early in November, 1906, he was admitted to the Western Infirmary with symptoms of perforated ulcer of 25 hours' duration. Dr. Edington opened the abdomen and found a perforated ulcer of the jejunum just beyond the gastro-jejunal communication. He closed the ulcer with Lembert sutures and covered over the part with a flap of omentum. The patient, who was collapsed on admission, did not rally and death took place three hours later. The post-mortem examination showed a healed ulcer at the commencement of the duodenum with constriction of the pylorus. The gastro-jejunal opening admitted the cone to a diameter of one and a half inches. The perforation in the jejunum had occurred in a portion of an ulcer the margin of which reached to the gastro-jejunal orifice.—Dr. A. N. McGregor showed a patient who had a Rupture of the Vagina with Protrusion of Bowel which he had successfully treated by replacement and suture. The patient was a woman aged 63 years, who while engaged in carrying coals into her house experienced pain and discomfort internally. Feeling ill she took some stimulant on going to bed. She woke up in the small hours of the morning and in getting out of bed fell across a chair and sustained a blow on the perineum. Immediately thereafter blood issued from the vaginal orifice and the bowel also prolapsed through it. Three days later she called in a medical man who sent her into hospital. On admission a large mass of bowel was seen in front of the vulva protruding from the vagina, of about the size of two closed fists The coils of intestine were matted together with fibrinous exudate and pus was present in the sulci. The loops of bowel were separated and on examination an opening in the posterior wall at the upper end of the vagina was found. An inch or so of bowel was pulled out through the opening and found not to be strangulated. The whole mass was carefully cleansed and replaced into the pouch of Douglas, the vaginal opening was stitched up, a gauze drain was inserted, and the vagina was packed with gauze. The vaginal packing was changed daily and the gauze drain was removed on the seventh day. On the fourteenth day she was allowed up and at the end of three weeks was dismissed well. The immediate cause might have been a procidentia on the first occasion and a perineal concussion in the second instance determining a rupture, or at the second accident a part of the chair might have penetrated through the vagina, but no further injury of the vulva, perineum, or vagina was noted. A vaginal examination six weeks later by Dr. J. K. Kelly revealed no abnormality save the presence of the scar. The uterus and appendages were normal but senile in character and no uterine or ovarian tumour was present. There was no history of previous vaginal or uterine disorder and the patient had had ten children normally.—Dr. McGregor showed for Dr. J. A. Adams a Fibromyoma of the Ovary removed from a patient suffering from acute intestinal obstruction. The patient was operated on five years previously on account of strangulated femoral hernia of the right side. On the present occasion a Littré's hernia of the left side and the tumour of the ovary were found. The former was relieved and the latter was removed.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Jan. 16th, Mr. E Powell, the President, being in the chair.—Mr. A. R. Anderson showed the Uterus with Contained Fœtus and Placenta of a primipara, aged 35 years, the subject of fibromyoma necessitating hysterectomy at four to four and a half months. Recovery had been rapid and uneventful.—Mr. Anderson also showed a specimen of true Papilloma removed from the posterior part of the bladder floor in a man, aged 36 years. It was a large mushroom growth, pedunculated, and had several times caused retention, there being also cystitis and hæmaturia. To prevent an undue enlargement of the suprapubic incision the growth had been removed in four pieces with scissors and the patient had made a complete recovery in every way.—Dr. F. H. Jacob read a paper on the Diagnosis and Treatment of some Diseases of the Skin. In tracing the diagnostic points of lupus special stress was laid on the daylight appearance of the yellowish, translucent, apple-jelly-like nodules, which did not disappear on pressure with glass. On the hands and in similar regions the typical nodules might be masked by the occurrence of a chronic inflammatory thickening. A case of tertiary syphilis was related in a man who had been under treatment for lupus for five years by different practitioners without success. In the later stages the appearance of a large V-shaped ulcer dividing the whole thickness of the upper lip, as well as some plaques with ill-defined margins on the face, made a correct diagnosis easier, and suitable anti-syphilitic treatment brought about a cure. Under the head of treatment Dr. Jacob pointed out that x rays gave good results with the least expenditure of time. The resulting scar was not always sightly and was liable to produce telangiectases, for which pure carbolic acid was often the most efficient application. Referring to the typical appearance of lupus on the gums and the punched-out ulcers it gave rise to on the hard palate its behaviour in the latter position was contrasted with similar ulcers due to syphilis, in that lupus, although a tuberculosis, never caused ulceration in bone. What were known as tuberculous gummata of the skin constituted a serious affection and of three such cases in children under his care all had subsequently succumbed to meningitis. The erythematous variety of lupus was often readily cured by the full doses of quinine recommended by Payne. The sebaceous variety was more troublesome but would yield to a single burning with x rays. The framboesial variety of syphilis was next described; it was amenable to antisyphilitic treatment if pushed. The distinctions between psoriasis, syphilitic psoriasis, and seborrhœa were then touched on and attention drawn to Whitfield's observation as to the frequent presence of the bottle bacillus in the last mentioned. Photographs were then shown and described of several interesting skin conditions, such as a tuberculous warty condition successfully treated by x rays; recurring raised vaccination marks; an elderly woman with papules at the nose tip diagnosed as acne necroticans serpiginosa; a baby with well marked urticaria pigmentosa; ringworm of the nails; and an epileptic girl of deficient intelligence with adenoma sebaceum on the face and pendulous adenomata on the back.—The paper was discussed by the President, Mr. A. R. Tweedie, Dr. J. S. Bolton, and Dr. W. Hunter, and Dr. Jacob replied

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Jan. 11th, Dr. John Brown being in the chair.—Dr. Leslie Buchanan showed two cases of Birth Injury of the Cornea. Both were typical illustrations of the results in later life of the rupture of the posterior surface of the cornea in consequence of extreme pressure upon the head of the child by instrumental delivery. Five cases of this kind had now been seen by him within three years. The condition was very easily overlooked. Two or more faintly marked curved lines might be seen crossing the cornea, usually in a nearly vertical direction, inclosing a space shaped like a broad barrel-stave. In any case where a high degree of astigmatism (usually myopic) was found in one eye only, the characteristic lines of refraction opacity should be looked for, either with the ophthalmoscope or by focal illumination, and the history of the birth inquired into.—Dr. Buchanan also read notes of a case of Metastatic Ophthalmitis which had occurred in the course of a case of pneumonia. The eye affection first showed itself on the fifteenth day of the disease, after the crisis, and at the same time the temperature again rose and became remittent. No cardiac murmur could be discovered. The eye was totally destroyed. The patient ultimately died and a necropsy showed that there had been malignant endocarditis. The pneumococcus was found both in the eye and in the splenic pulp.—Dr. W. F. Somerville read a paper on the Treatment of Neurasthenia. He emphasised the necessity for complete isolation in a neurasthenic home as opposed to an ordinary nursing home. Patients were kept in bed for three weeks and then allowed up. They were given a very full diet, including from 20 to 30 ounces of milk per diem. General massage, medical exercises, and the high-frequency current were also employed. The daily routine was so arranged that there was no time for dulness. During the last two or three weeks of their stay they went out shopping and this made the change of returning to their homes less abrupt.—Dr. W. S. Syme showed: 1. Two patients in whom the operation of Ossiculectomy (or Otectomy) had been performed. The operation was indicated where the disease was limited to the tympanum and ossicles or attic. The amount of discharge, the presence, seat, and amount of granulations, the position of the perforation, and information obtained by the use of the probe were the chief points in determining such limitations

of the disease. 2. A patient with Right Recurrent Laryngeal Paralysis, thought to be due to an old-standing tuberculous lesion at the right apex.

LARYNGOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on Jan. 4th, Dr. J. B. Ball, the President, being in the chair.—Dr. P. Watson Williams showed stereoscopic skiagrams of the Nasal Accessory Sinuses.—Dr. StClair Thomson and Dr. Herbert Tilley exhibited specimens of Cartilage and Bone removed by means of Killian's submucous resection operation for the correction of deviations of the septum. A discussion followed on the relative merits of local and general anæsthesia for this operation; on this point opinions appeared to be divided.—Dr. W. Jobson Horne exhibited macroscopic preparations illustrating Cystic Disease of the Larynx and a condition simulating cystoma.—Dr. W. H. Kelson showed a woman, aged 65 years, with a Circumscribed Tumour of the Palate of about eight weeks' duration. There was a difference of opinion as to its nature, the diagnosis being a fibro-adenoma or an endothelioma. It was generally agreed that it should be removed.—Dr. Kelson also showed a patient with Ulceration of the Epiglottis and of the Base of the Tongue which was regarded as malignant disease and inoperable.—Mr. P. R. W. de Santi showed a case of Tertiary Syphilitic Laryngitis for opinion as regards treatment.—Dr. A. Lieven recommended tracheotomy to keep the parts at rest; if it were not done now it would have to be done later to overcome the contraction of the glottis; he advised injections of calomel, using 1 part of calomel in 10 of vasanol, a new preparation of paraffin which was the least irritating vehicle he knew. A very small dose should be given at first as the patient might be intolerant of mercury.—The President showed a case of Laryngeal Disease presenting Difficulties of Diagnosis. Opinions were in favour of it being due to syphilis.—Dr. C. A. B. Horsford showed a patient with Considerable Enlargement of the Cervical Glands following Removal of a Tonsil. The diagnosis rested between primary chancre of the tonsil, malignant disease, and deep suppuration in the neck. It was advised that anti-syphilitic treatment should be used before incising the neck. Dr. Horsford was asked to report to the society the subsequent history of the case.—On behalf of Dr. G. C. Cathcart, Dr. Jobson Horne showed the specimen from a case of Fibroma of the Larynx in a patient present at the last meeting of the society. When the patient was exhibited there was a general consensus of opinion that the tumour, which occupied the left arytenoid region, was a cystoma. It was subsequently found to be a solid tumour which had to be removed through an external incision.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held at Manchester on Jan. 18th, Mr. R. Favell (Sheffield) being in the chair.—Dr. E. O. Croft (Leeds) was elected President, Dr. J. H. Willett (Liverpool) secretary, and Dr. W. K. Walls (Manchester) treasurer for 1907.—Mr. Favell showed a large Hypernephroma of the Left Kidney which occupied the pelvis and lower portion of the abdomen, and was successfully removed by the abdominal route.—Dr. J. B. Heiller (Leeds) showed a Fibroid Polypus of the Cervical Canal which was of such size that it completely filled the vagina and was so irregular in form that it closely simulated a "cauliflower excrescence" of the cervix.—Dr. A. J. Wallace (Liverpool) showed a Uterus removed for Cancer of the Cervix by the abdominal route with extensive dissection of the pelvic glands and connective tissue. The obturator gland was shown to be much enlarged by secondary deposits, as were also glands dissected off the iliac vessels. Dr. Wallace regarded vaginal hysterectomy as merely palliative. He had done the extensive abdominal operation in nearly 20 cases with a mortality of under 30 per cent. In fat subjects the operation was dangerous and prolonged, but in thin patients it did not appear to be attended by undue risk.—Dr. D Lloyd Roberts (Manchester) showed a Fibroid 13 inches in diameter and weighing over 32 pounds. It was removed from a multiparous widow, 44 years of age, who had been aware of its presence for 14 years. It finally produced pressure symptoms, menorrhagia, and metrorrhagia. The capsule was incised and the growth was enucleated as a preliminary to the removal of the uterus at the level of the internal os. Recovery was uneventful.—Mr. E. Stanmore Bishop (Manchester) showed a specimen illustrating the advantages of Anterior Vaginal Hysterectomy for the Removal of Certain Submucous Fibroids; also an example of Ectopic Gestation in which the symptoms and history suggested gonorrhœal pyosalpinx rather than tubal pregnancy.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on Jan. 18th, Dr. J. R. T. Conner, the President, being in the chair.—Mr. Peter L. Daniel gave a demonstration on Common Surgical Affections frequently met with in Out-patients. He said that in a child any injury of the elbow-joint causing pain was most probably a fracture. A frequent sequel to treatment was ankylosis, so the prognosis must be guarded. In treatment of fracture of the epicondyle the elbow should be flexed and put up in an anterior angular or a posterior angular splint, which could be readily made of Gooch's splinting. The arm ought to be kept in position for ten days, after which the child should be allowed to perform active movements. Injuries about the elbow-joint were difficult to diagnose, so they ought to be examined with the x rays and at once put up in the best position, whether in flexion or extension. Movement ought to be practised in a few days as less ankylosis was thus got. Colles's fracture was reduced by employing extension and adduction and by applying splints, which should be taken off in 24 hours, and all the fingers should be moved to free the tendons and so prevent adhesions. The splints ought to be discarded in a week. Leucoplakia in syphilitic patients was wholly caused by oral sepsis. Bad teeth ought to be removed and an antiseptic mouth wash should be used after every meal. Pruritus ani entirely depended on moisture and germs in cases of piles, leucorrhœa, fissure, abscess, general colitis, &c. The parts should be carefully cleansed after defæcation and frequently mopped with a glycerine, spirit, and carbolic lotion. Chronic ulcer of the leg should be treated by elevating the leg and cleansing the ulcer with an unirritating lotion and by the application of one inch wide strips of diachylon plaster from two inches below to two inches above the ulcer, laid on the leg without pulling. The limb should be bandaged from the toes to the knee and the dressing changed at the end of 24 hours.

MANCHESTER PATHOLOGICAL SOCIETY.—A laboratory meeting of this society was held in the pathological laboratory of the University of Manchester on Jan. 16th. The following demonstrations took place:—Dr. W. B. Anderton: Some naked-eye specimens.—Dr. E. M. Brockbank: Blood Plates.—Dr. W. J. S. Bythell: Photo-micrographs in natural colours.—Professor S. Delépine and Dr. A. Sellers: (1) Hydatid Cyst of the Brain of a child; (2) Bacterial Necrosis of the Liver of a calf; (3) Botryomycosis in the horse; (4) specimens illustrating the Bacteriology of Plague; (5) specimens illustrating the Comparative Pathology of Tuberculosis; and (6) method of cutting sections by the Delépine freezing microtome.—Dr. Fennell: Traumatic Affections of the Cervical Vertebræ.—Mr. F. R. Howson: Specimens of physiological interest.—Dr. G. E. Loveday and Dr. A. Ramsbottom: Determination of the Opsonic Index.—Dr. W. Mair and Dr. C. Powell White: Primary Carcinoma of the Liver of Suprarenal Origin.—Dr. F. Craven Moore: Endothelioma of the Stomach.—Dr. D. Orr and Dr. R. G. Rows: Lesions of the Central Nervous System.—Dr. Parker: Pathological Lesions of the Eye.—Mr. L. Savatard: Microscopical specimens of skin diseases.—Dr. W. F. Shaw: Chronic Metritis.—Professor J. Lorrain Smith: Fat staining by aniline dyes.—Mr. F. A. Southam: Cystine Calculi.—Dr. Powell White: Fat Crystals and Fat Emboli.—Dr. Powell White and Mr. Roberts: Intracystic Fibro-adenoma of the Breast.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—At the Rowton Club, Wick, Gloucestershire, on Jan. 15th, Mr. Henry Hugh Williams, L.R.C.P., L.R.C.S. Edin., was entertained at dinner and afterwards the chairman, the Rev. H. Tomkins, vicar of Wick, on behalf of the subscribers, presented him with a silver rose bowl mounted on an ebony plinth, bearing the following inscription: "Presented to Henry Hugh Williams by many grateful friends and patients on his retirement from practice in Wick and the neighbourhood, January, 1907."—The members of the Wigan Medical Society have presented Mr. J. Blair, M.D., M.Ch. R.U.I., with a sugar basin in the form of a silver cradle on the occasion of the birth of a son during his presidency in 1906.

Reviews and Notices of Books.

Hermann von Helmholtz. By LEO KOENIGSBERGER. Translated by FRANCES A. WELBY, with a preface by Lord KELVIN. Oxford: Clarendon Press. 1906. Pp. 440. Price 16*s.* net.

THE story of Helmholtz's life rivals in interest any previous biography of scientific men which it has been our lot and our good fortune to read. His career was pregnant with scientific discoveries which have been not merely of academic interest but of importance to the world's practical affairs, inasmuch as they have contributed in many directions to the welfare of all peoples. In this connexion may be mentioned one branch of study in which Helmholtz's researches and ideas were fruitful. He it was who, in Lord Kelvin's words in the preface to this volume, gave to Hertz the inspiration to find experimental proof of Maxwell's electric waves. Not long afterwards the first practical demonstration was given of progressive electric waves and of stationary waves in air, and therefore inferentially, in the ether undisturbed by ponderable matter. The result has since been the achievement of wireless telegraphy. Helmholtz was, as we are reminded by this biography, a medical officer in the Prussian army for five years, was teacher of anatomy in the Academy of Arts in Berlin for one year, was professor of pathology and physiology in Königsberg for six years, was professor of anatomy in Bonn for three years, professor of physiology in Heidelberg for 13 years, and professor of physics in the University of Berlin for about 20 years. What wonder, then, that the story of his life is full of interest and that his work so greatly enriched our knowledge of physiological facts. To medical readers in particular perhaps the story of his life while professor of physiology at Königsberg, 1849–55, affords one of the most interesting chapters. It was here during the preparation of his lectures that he hit upon the invention of the ophthalmoscope and then on the method of measuring the velocity of nervous impulses. In a letter to his father in December, 1850, he wrote: "I have made a discovery during my lectures on the physiology of the sense organs which may be of the utmost importance in ophthalmology. It was so obvious, requiring, moreover, no knowledge beyond the optics I learned at the gymnasium, that it seems almost ludicrous that I and others should have been so slow as not to see it. It is, namely, a combination of glasses by means of which it is possible to illuminate the dark background of the eye through the pupil, without employing any dazzling light, and to obtain a view of all the elements of the retina at once, more exactly than one can see the external parts of the eye without magnification, because the transparent media of the eye act like a lens with a magnifying power of 20. The blood vessels are displayed in the neatest way with the branching arteries and veins, the entrance of the optic nerve into the eye, &c. Till now a whole series of most important eye diseases known collectively as black cataract have been *terra incognita*, because the changes in the eye were practically unknown both during life and, generally speaking, after death. My discovery makes the minute investigation of the internal structures of the eye a possibility." Subsequently "this very precious egg of Columbus" was announced at a meeting of the Physical Society, Berlin, as Helmholtz's property and a new and improved instrument soon replaced his "pasteboard affair." Helmholtz confessed that he might not have persevered save for his conviction that it must succeed—a feeling which has been the experience of the founder of many a brilliant discovery—but after about eight days he "had the great joy of being the first to see a living human retina" exposed before him. Physics, however, as his many and valuable papers on colour, sound, meteorology, cohesion, and electrodynamics bear witness, was Helmholtz's bent and all serious students of that branch of science recognise what an enormous loss the world of science and progress sustained by the death of Helmholtz in 1894. "His early death," said du Bois Reymond, "which removed him in the midst of his full working powers was felt not merely as an irreparable loss to science but as a national misfortune."

The book before us is a well-written and enthralling story of the career of a remarkable scientific character. Not a chapter, not a page, is dull reading to those interested in the developments and working of a scientific mind, the activities of which had achieved such brilliant results. The story, too, of his domestic relationships is full of charming episodes. It is not difficult to realise that the writer of this biography was in close personal touch with the subject of his sketch, and further, it is obvious that he possessed a clear scientific view of Helmholtz's aims, studies, and results. For the English translation we have nothing to express but praise, and to the translator and the Oxford University Press we may say, what we feel English scientific men generally will say when they have read this charming biography, that we are grateful for a very valuable and interesting account of a very valuable and interesting life.

Recent Advances in the Physiology of Digestion. By E. H. STARLING, M.D. Lond., F.R.S. With 12 illustrations. London: A. Constable and Co., Limited. 1906. Pp. 156. Price 6*s.* net.

THE Mercers' Company gave a donation in aid of the work of the Physiological Department at University College, London, and these lectures are the first course of Mercers' Company lectures. The masterly series of researches of Pawlow on digestion and the digestive gland have led to a great development in this branch of physiology but we still requíre a better knowledge of the physical and chemical conditions which determine the digestive changes in the foodstuffs themselves.

The first two lectures—dealing with the action of ferments—approach a subject which must play a great part in all our future conceptions of intracellular mechanism—i.e., the study of the chemical and physical changes in colloidal and capillary systems, where the modification of physical conditions occurring at surfaces determines changes of another order. There is the second important starting point that the pancreas is excited to secrete by the despatch of a chemical messenger, or hormone, formed in the gut and sent to the reacting gland through the blood stream.

The third lecture gives an excellent account of the secretion of saliva, of course including the now well-known results of Pawlow's experiments on dogs with the ducts of the salivary glands made to open on the exterior of the cheek, a method which was first used by de Graaf. The author does not accept Heidenhain's view as to salivary secretory nerves, but regards the glands as supplied by one kind of fibre, namely, secretory, in addition to the fibres—i.e., vaso-constrictor and vaso-dilator—which exercise their main influence on the blood-vessels of the gland. It would have been convenient had the date—1851—of C. Ludwig's great discovery been stated—viz., the impossibility of explaining the process of secretion as in any way determined by the blood pressure.

Digestion in the stomach is the subject of the fourth lecture. Here again there is, of necessity, a full account of Pawlow's work, and following on the brilliant discovery of secretin by Starling and Bayliss there is an account of the discovery by Edkins of a gastric secretin which is formed in that part of the stomach where the process of absorption is most pronounced—i.e., in the pyloric region. Thus it

appears that the normal gastric secretion is due to the co-operation of two factors—the first and most important is the nervous secretion, determined through the vagus nerves, and the second is chemical.

The fifth, sixth, and seventh lectures deal with pancreatic juice, the properties of its secretin, and changes in the pancreas during secretion. These lectures embrace a full account of the work of the older observers, but their special interest centres round *secretin* and the large part played by chemical messengers, or hormones, in exciting pancreatic secretion. The author, in treating of the islands of Langerhans, states that no evidence exists in support of the notion that the islets are organs for the production of an internal secretion and he speaks of the "equally unknown anti-diabetic function of the pancreas." The islets of Langerhans are not independent structures of separate origin but are formed, as shown by Dale and others, by certain definite changes in the arrangements and properties of the cells of the ordinary secreting tissue.

The eighth lecture on the bile is a short one. The ninth is devoted to intestinal juice and the last largely to the work of Starling and Bayliss on the movements of the intestine.

We cordially commend the study of these excellent, thoughtful, and suggestive lectures to practitioners of medicine and also to students of medicine preparing for the higher examinations.

Local Anæsthesia in General Surgery. By J. W. STRUTHERS, M.B. Edin., F.R.C.S. Edin. Edinburgh: W. Green and Sons. 1906. Pp. 136, with illustrations.

THIS small book provides a clear and concisely written account of the various methods of procuring local anæsthesia. Its author is no immoderate upholder of the use of local as opposed to general anæsthetics and, in fact, appears generally to regard them as a substitute in cases where general anæsthetics are not advisable. There is, however, a wide field of minor surgery in which in many instances local is to be preferred to general anæsthesia. How best to obtain this anæsthesia Mr. Struthers's book explains very well. The various available drugs are described and the advantages of cocaine over the others are upheld provided that proper regard is paid to the question of the strength of the solution. The author thinks that ½ per cent. is the maximum strength that should be used for ordinary subcutaneous injection. He finds that reactionary pain is common. When a tourniquet is used to enhance the anæsthetic effect this pain though more delayed in its onset is more severe, may last from five to ten hours, and may require the administration of morphine. The methods of infiltration anæsthesia are well described and illustrative cases in which various operations have been performed with the assistance of this form of anæsthesia are given in detail. A short chapter on spinal anæsthesia concludes the work.

The Cathedrals of England and Wales. By T. FRANCIS BUMPUS. Third series. London: T. Werner Laurie. 1906. Pp. 328. Price 6*s.* net.

THE first cathedral dealt with in this series is Lichfield, the motto of whose seventeenth-century bishop, Hacket, "Serve God and be cheerful," might, by the way, well be commended to the pessimists of this dyspeptic age. In every English cathedral is enshrined the memory of one or more great names, and accordingly in the chapter on Lichfield the author gives us appropriate references from Boswell and other sources to Dr. Johnson whose kindness of heart (notably in the case of that "obscure practiser in physick amongst the lower people," as Boswell quaintly describes Mr. Robert Levett, whom the great author so generously helped) is too often forgotten in our admiration of his genius. Gloucester, the next in order in the volume, is associated with the name of that great English musician, Dr. S. S. Wesley, of whom an interesting account is given. Rochester is so inseparably associated with Dickens that the author has prefaced his chapter on that fane with a lengthy extract from the great novelist's last and, alas, unfinished work (which is almost exclusively occupied with the cathedral), "Edwin Drood," and in addition he gives another extract in the text. Oxford, "the home of lost causes," as Matthew Arnold calls it, holds so many great names that our space will not allow us even to enumerate them but here again the author has produced a full and interesting chapter.

It must not be supposed, however, that although it deals with weighty matters the book is heavy, for, mixed up with exhaustive descriptions, architectural, historical, musical, and biographical, are anecdotes in a lighter vein, such as that relating to Dr. Corfe, sometime organist of Oxford Cathedral, who so rarely changed his stops during the service that the undergraduates called the particular quality of tone produced the "Corfe-mixture." The remaining cathedrals in the series are Carlisle, Llandaff, Bangor, St. David's, St. Albans, Ripon, Manchester, Truro, Southwell, Newcastle, Wakefield, Liverpool, Birmingham, and Southwark.

The full-page plates, 32 in number, are excellent and the volume will be found to be as interesting as it is instructive.

Elements of Practical Medicine. By ALFRED H. CARTER, M.D. Lond., M.Sc. Birm. Ninth edition. London: H. K. Lewis. 1906. Pp. 614. Price 10*s.* 6*d.*

THE fact that a ninth edition of this well-known and popular work has been demanded is of itself a proof that it has accomplished the object for which it was written—namely, that of an elementary introduction to the study of medicine. In the work before us the text has been carefully revised throughout, many sections having been entirely rewritten, and a few necessary additions have been made, bringing the contents up to date. The author has availed himself of the help of Dr. A. Stanley Barnes in the chapters on Pathology and Nervous Diseases, and of Dr. A. Douglas Heath of the Skin Department in the Birmingham General Hospital in the section on Diseases of the Skin.

In a work so well known criticism can scarcely find a place and such as we offer has merely the object of making the next edition still more complete. Amongst certain methods of treatment we find no mention of that of dysentery by izal which has been so successfully carried out in India by Vaughan. Excellent results, again, in the treatment of blackwater fever have accrued from cassia Bareana. Acute pneumonia is considered amongst the diseases of the lungs; surely its place rather is amongst the specific infective diseases, especially as the author himself describes it as one of these. But in truth the scope and treatment of the work are so excellent as an elementary text-book that we need not do more than heartily recommend it as a volume which the student will find helpful in every way at the commencement of his medical career.

LIBRARY TABLE.

The Elements of the Practice of Comparative Medicine, together with the Records of Some Cases. By FRANK TOWNEND BARTON, M.R.C.V.S., and GEORGE GRESSWELL, M.A. Oxon., L.R.C.P. Edin. London: Everett and Co. Pp. 240. Price 5*s.* net.—In presenting this volume to the students of the medical and veterinary professions the authors say that they have endeavoured to give an outline

of the principal clinical features of some of the diseases that are communicable from the lower to the higher animals, without entering into the details found in the text-books of human and veterinary medicine. Mr. Barton and Mr. Gresswell have broken ground, so to speak, in a new country, but it appears to us as if they have rushed into print without duly considering the best way of writing such a book or weighing all the evidence of the subject matter. We find also misspelt words, such, for instance, as "pruritis" at p. 208; such mistakes are probably due to bad proof reading. For poor and faulty description we may refer to the section on Vaccinia or Cow-pox, of the protective virtues of which the authors are perhaps uncertain How can the presence of a varicocele favour tuberculosis? The authors say that it does so, "probably by fanning, so to speak, an already lit fire."

The "Ideal" Medical Diary and Visiting List. London: Langley and Sons, Euston Printing Works, George-street, N.W.—This diary, of which we have received two samples, one wallet being of morocco, and the other of imitation morocco, just fills the breast pocket of a coat. On opening the wallets, which are fastened with spring buttons, the contents are seen to be divided into two distinct portions. To the left is a diary and visiting list; to the right is a manifolding prescription book. Each wallet has an inside pocket and a pencil. In the real morocco wallet the diary section is detachable; in the imitation morocco wallet the diary is fixed. In each the prescription book is removeable. The diary contains a calendar for three years, 1906, 1907, and 1908, four double pages or "openings" for obstetric engagements, and the "general visiting list" with an "opening" for each week of the year, containing on each page columns for names and addresses, and to the right thereof seven narrow columns headed with the days of the week and dates. In this connexion, there are signs suggested for use in the "Visiting List," such as a cross with two dots for two visits made, and a cross with three dots for three visits made, and so on. At the end of this section follow a dozen pages for memoranda, two pages for nurses' addresses, eight pages for patients' and general addresses, and four pages for a record of vaccinations. All these are ruled into proper columns. Then, to close the section, is an obstetric table. The second and distinct section consists of a prescription book comprising 50 fixed tissue and 50 detachable thick pages, and a carbon sheet for manifolding, placed between cards with a lustrous metallic surface. The year is printed in gilt figures, both on the exterior side of the wallets, and at the foot of the narrow back of the books so that the years may be read when the books are packed on a bookshelf. Each diary, we find, weighs half a pound. The prices of the diaries are respectively 7*s.* 6*d.* and 5*s.* and the prices of the refills are, for the diary, 3*s.* 6*d.*; and for the prescription book, 6*d.* The real morocco wallet is advertised as being "available for refills for subsequent years." In that case might it not be as well in the case of this book to omit the gilt figures which denote the year? The whole book, which we are told has been made "as suggested by a member of the profession," seems quite businesslike and will appeal to all those who value method with its labour-saving, time-saving, and worry-saving consequences.

Wellcome's Medical Diary and Visiting List, 1907.—We have received from Messrs. Burroughs, Wellcome, and Co. a copy of their medical diary consisting of 152 pages, comprising sections for accounts asked for or sent, nurses' addresses, patients' and general addresses, cash account, diary, visiting list, infectious cases notified, memoranda, obstetric engagements, patients certified under the Lunacy Act, and vaccinations. There is also a column of signs suggested for use in the visiting list. In addition there are many pages devoted to useful therapeutic notes, a posological table, legal information, diet tables, weights and measures, medical and other formulæ, and postal information. There is also a parchment strip on the inside back cover for memoranda, the pencil marks made on which can be erased with a damp cloth. The whole diary and additional matter are contained in a leather wallet, with an inside pocket and pencil and a bookmarker. We find that it weighs 11 ounces but there is certainly plenty of value in a small compass.

Whitaker's Almanack for 1907. By JOSEPH WHITAKER F.S.A. Pp. 792. Price 2*s.* 6*d.* *Whitaker's Peerage for 1907.* Pp. 737. Price 2*s.* 6*d.* London: Whitaker and Sons.—We can only repeat monotonous praise for these two incomparable books of reference. They are both as good as ever they were, if not better. One new feature of the Almanack is an account of the Growth of Travelling Facilities in London. The writer of this article draws attention to the fact, which must have been noticed by any observant person, that so far from increased facilities reducing traffic in the streets they only increase it. London, in fact, was not built for modern "facilities of travelling," and until either an earthquake or a Haussman comes to work wholesale removals the old cramped streets will remain congested. The "Peerage," which is also a baronetage, knightage, and companionage, contains an enormous amount of information in a small compass, and the two volumes are indispensable to everyone who desires information about the world in which he lives.

Who's Who? 1907. Pp. 1958. Price 10*s.* net. *Who's Who Year book, 1907.* Price 1*s.* net. London: A. and C. Black.—The issue of "Who's Who?" for the current year is larger by some 80 pages than that of 1906 and we note that the price has been increased from 7*s.* 6*d.* to 10*s.* No explanation is given in the "advertisement" of this somewhat large increase in price, but all the same "Who's Who?" together with its companion "Year Book," remains a most useful book of reference. We ourselves find it a constant help, and the detailed information in its pages is, we know, often drawn upon by our lay contemporaries. No medical man, however, can understand upon what system some names are excluded and some included, while the amount of space devoted to quite unimportant individuals is in some instances comic.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by Sir MICHAEL FOSTER, K.C.B., F.R.S., and J. LANGLEY, Sc.D., F.R.S. Vol. XXXV. Nos. 1 and 2. Dec. 29th, 1906. London: C. F. Clay. Pp. 162. Price 10*s.*—The contents of this part are: 1. On the Movements of the Uterus, by Arthur R. Cushny, M.D. Aberd., with 12 figures in the text. Dr. Cushny's observations were made upon rabbits, cats, and bitches. The abdomen was in each instance opened whilst the body of the animal was immersed in normal saline solution at 38° C., care being taken that there was no exposure to the air. The hypogastric nerve was tied and cut. In virgin cats and rabbits the uterus often remained motionless for a long time, but after manipulation or after exposure to the air rhythmic contractions were developed. He thinks that in the intact animal movements may probably be absent altogether. In animals in heat and during and after pregnancy spontaneous movements are generally present. The spontaneous movements of the longitudinal fibres are slow, the intervals between successive contractions being about from 15 to 60 seconds but sometimes as much as 10 or 12 minutes, varying much in strength. The contractions in different parts of the uterus often bore no relation to one another. The contractions of the circular fibres resembled

those of the longitudinal fibres and occurred independently of them. Mechanical or electric stimulation of the uterus causes a powerful contraction lasting from 10 to 30 seconds. Powerful contractions can be excited by stimulation of the hypogastric nerve. Anæmia of the organ artificially induced caused slow and weak contractions. The effects of various drugs, nicotine, pilocarpine, atropine, adrenalin, and quinine, are given. Aloin injected intravenously induced immediate contraction; alcohol had little or no effect. 2. On the Presence of Lactase in the Intestines of Animals and on the Adaptation of the Intestine to Lactose, by R. H. Aders Plimmer, D.Sc. 3. The Hæmatology of Carbon Monoxide Poisoning, by G. G. Nasmith, M.A., Ph.D. (Toronto), and D. A. L. Graham, M.B. (Toronto). The authors of this article show that the poisonous effect of carbon monoxide is due to its prevention of the normal combination of oxygen with hæmoglobin, but if the animal (guinea-pig) be kept in a dilute mixture of carbon monoxide with air an effort is made by the system to overcome the toxic influence of the gas by the production of a greatly increased number of erythrocytes. 4. The Conditions of Tissue Respiration, by H. M. Vernon. 5. The Importance of Individual Amino-acids in Metabolism: Observations on the Effect of adding Tryptophane to a Dietary in which Zein is the Sole Nitrogenous Constituent, by Edith G. Willcock, Fellow of Newnham College, Cambridge, and F. Gowland Hopkins, F.R.S. The authors of this article find that a dietary containing zein as its only nitrogenous constituent is unable to maintain growth in young mice and the addition of tryptophane, an amino-acid absent from the decomposition products of zein, does not make it capable of maintaining growth though it greatly prolongs the survival and promotes the well-being of such animals, probably by constituting the precursor of some specific hormone. 6. On the Optimal Electric Stimuli of Muscle and Nerve, by Keith Lucas, Fellow of Trinity College, Cambridge. 7. Experimental Lymphocytosis, by W. Henwood Harvey, M.B.Tor. Dr. Harvey finds that a leucocytosis follows immediately upon the injection of pilocarpine, muscarine, or barium chloride. This effect is of purely mechanical origin and is due to contraction of the plain muscle element in the spleen and lymphatic glands. It may be inhibited by atropine. 8. On Methods supposed to Localise Phosphorus in Cells, by F. H. Scott, Ph.D., M.B. 9. On Diurnal and Nocturnal Variations in the Excretion of Uric Acid, by J. B. Leathes. 10. Experiments on the Isolated Mammalian Heart to show the Relation of the Inorganic Salts to the Action of the Accelerator and Inhibitory Nerves, by W. H. Howell and W. W. Duke. 11. Observations on Human Chyle, by J. Molyneux Hamill, M.B. Cantab. An average sample, obtained from a fistulous passage connecting the thoracic duct with an opening in the right groin, contained 3·87 grammes total solids per 100 cubic centimetres of chyle, comprising 0·83 ash; fat, from 1·344 grammes to a much larger proportion; total nitrogen, 0·364 gramme; lecithin, equal to 4·204 grammes per 100 grammes of ether extract; and cholesterin, equal to 5·2 grammes in the same. This number also contains the proceedings of the Physiological Society at the meetings held on Oct. 20th and Nov. 17th, 1906.

Man.—In the January number of *Man* M. E. Cartailhac publishes in French an account of the discovery of a great many (about 80) representations of human hands on the sides of a cavern at Gargasse in the Hautes-Pyrénées. The work is supposed to be of the Palæolithic age. The process employed was such that the pigment lies outside the contour of the hand, and M. Cartailhac states that Australian aborigines now produce such designs by holding the hand against a flat surface and blowing a coloured powder over it, so that on removal of the hand an outline of it remains on the surface.

New Inventions.

A MODIFIED URETHRAL SYRINGE.

THE accompanying illustration explains the nature of the syringe. It consists of two parts—a Guyon syringe and a catheter shaped like a bladder sound. The syringe is used for applying local applications to chronically inflamed patches of the urethra. The advantages over the ordinary acorn-headed catheter are the following—greater accuracy in localising the inflamed patch is obtained by means of the beak; the difficulty of introducing an instrument through a small meatus which is capable of putting the urethra on the stretch while the application is made is overcome. A further advantage is that after the application has been applied the inflamed patch can be massaged with the beak of the syringe, which greatly aids the efficacy of the application. The Guyon syringe insures great accuracy of the quantity of the solution applied. The barrel of the syringe is six and a half inches long, and the prostatic urethra can be reached if necessary. The instrument is manufactured of silver and was made to my design by the Holborn Surgical Instrument Company.

T. W. S. PATERSON, M.B., B.C. Cantab.
King William-street, E.C.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Jan. 24th. 1829.

FOREIGN DEPARTMENT.

TREATMENT OF PHTHISIS BY SMOKING BELLADONNA.

PROFESSOR CARVEILHIER has lately used the belladonna in phthisis with great success, in the following manner: the fresh leaves were infused in a strong solution of opium, and then dried up like tobacco; the patients began by smoking two pipes a day, and the quantity was gradually increased to six pipes. In several cases of confirmed phthisis the cough became less frequent and violent, the pain and irritation of the larynx subsided, the dyspnœa disappeared, the expectoration diminished, and became less troublesome, the profuse nocturnal sweats, the heat and febrile excitement, became less, and the disease seemed to be completely arrested.—*Nouv. Bibl. Medic.*

SINGULAR ACTION OF ARSENIC ACID ON SEVERAL SORTS OF SUGAR.

A SOLUTION of the arsenic acid and common sugar being mixed, the fluid, after a few hours, assumes a beautiful purple colour, resembling that of raspberry syrup; if instead of common sugar that of starch is used, the same colour, but somewhat brighter, is produced; the sugar of milk assumes a reddish brown colour; manna becomes of a brick colour; diabetic sugar and the saccharine principle of oil, as well as gum and pure starch, are not changed at all by the arsenic acid. Caustic potash and ammonia, have no power of destroying the colour of the above mentioned liquids; nitric and muriatic acids render it brighter; sulphuric acid changes it into a dark brown colour.—*Schweigger's Jahrbucher.*

THE LANCET.

LONDON: SATURDAY, JANUARY 26, 1907.

The Hospital Funds and the Medical Profession.

THE hospitals of London, the great medical charities of the metropolis, struggling to maintain their efficiency in an age of unprecedented scientific and social development, and to meet the demands upon their resources caused by the rapid growth of urban population, have received during the latter portion of the last century and the beginning of the present century invaluable assistance from funds organised for the purpose of collecting and distributing among them the contributions of the benevolent. Very large sums of money have been placed at the disposal of the hospital committees by these funds and in every year through their aid thousands of the poor and suffering have had medical and surgical relief which otherwise it would have been impossible for the hospitals to afford. And if in the past those controlling such funds as King Edward's Hospital Fund for London, the Metropolitan Hospital Sunday Fund, and the Hospital Saturday Fund, have earned the gratitude of their fellow citizens, they have no reason to believe that in the future their efforts and those of their successors will be less effective or less gratefully received. Indeed, there seems to be every reason to suppose that the confidence inspired by well-directed charitable organisations will cause in the future steady and substantial augmentation of the incomes of these funds, because they have been administered with care and discretion in the past.

In the circumstances it is not surprising that those responsible for the management of such funds in two instances—that of King Edward's Hospital Fund for London and the Metropolitan Hospital Sunday Fund—should be seeking to establish themselves and the important charitable movements which they represent upon definitely ordered and permanent foundations. The manner in which they propose to do so is a matter of considerable interest to the benevolent public, and no less so to the medical profession which, during the period of the existence of these great funds—as for years, or, indeed, centuries, before they came into being—has given in charity that medical and surgical treatment for the exercise of which the money of benevolent laymen has provided and maintained the hospitals. We do not of course ignore the pecuniary gifts and bequests to hospitals made by the medical profession, but, speaking generally, as the lay public has contributed money, physicians and surgeons have *pari passu* given freely their time and their skill during the best years of their lives to the same worthy object. The medical profession, therefore, no less than the public, will consider with interest the provisions of the Bill which has for its object to incorporate the president and council of King Edward's Hospital Fund for London, and to provide for the management of the Fund, as well as the draft charter of incorporation under which the Metropolitan Hospital Sunday Fund seeks to define and to render permanent its constitution. Such steps concern others besides those who are immediately occupied in directing them. They are of more importance than any of the preceding acts of the institutions concerned and are subject to criticism from a different point of view. The organised collection and distribution of money in charity, or for any other purpose, is a matter of interest principally during the period in which the money in question is collected and distributed, and during which the effect of these operations is felt. Criticism may be withheld, or, being put forward, it may be either considered or disregarded, for an error made in one year can always be corrected in the next. When, however, Parliament is asked to pass a Bill, or when the Royal assent is asked to a charter, it is a case of legislating for posterity and in dealing with that which will affect posterity for good or ill too much foresight and too careful scrutiny of probable or possible developments can hardly be employed.

The Bill for the incorporation of King Edward's Hospital Fund is redolent of that high respect for the Throne and for the wise and enlightened monarch who occupies it, which all his subjects feel, and indeed share with the world, but we doubt whether that respect might not have been evinced without casting upon the occupant of the British throne for all time responsibilities which must inevitably weigh heavily and which may in conceivable circumstances prove irksome and difficult to sustain without liability to error. The Bill provides that His Royal Highness the PRINCE OF WALES shall continue his position of President of the Fund as President of the corporation "during the pleasure of the Sovereign" and that "every succeeding president shall be appointed by and hold office during the pleasure of the Sovereign." The whole of the management of the corporation is then vested in the President or through him in the Sovereign. The President appoints a council of such and so many as he may choose, and is to have absolute control of the property and funds of the corporation. Its management is provided for in these terms, to quote Section 5 of the Bill:—

"The direction control and management of the affairs and property of the corporation and the application of all moneys property and income of the corporation shall be vested in the President whose powers shall include the following—that is to say (*a*) power to appoint and at pleasure remove the members of the general council and of any other councils and committees hereinafter mentioned and trustees treasurers secretaries auditors and other officers and to award them or any of them salaries or remuneration (*b*) power to appoint and dissolve councils and committees other than the general council and from time to time to delegate to any council or committee all or any of his powers of direction control or management as he may think fit (*c*) power to make vary and rescind bye laws rules and regulations for the management and administration of the affairs and property of the corporation and the procedure relating thereto including the use of the corporate seal and the keeping of regular books and accounts (*d*) power to direct the mode of collection of moneys for the corporation and the distribution and allocation of such moneys and of all property and income of the corporation to or for the benefit of all or such one or more

to the exclusion of the others of the hospitals of London as he in his uncontrolled discretion shall think fit and generally to determine the manner in which such moneys property and income shall be dealt with and applied for the purposes of this Act and in furtherance of the objects of the corporation (*e*) power to determine whether any institution proposed to be benefited is or is not within the limits of the objects of the corporation as defined by this Act and (*f*) power generally to do or direct to be done all acts and things which in his discretion he may deem conducive to promoting and effecting the objects of the corporation."

We need not labour our point with regard to the autocracy which is thus proposed to be instituted, but without disrespect to King EDWARD VII. or to his successors who may occupy the throne, we may point out that our present Sovereign succeeded as a man of mature judgment, with wide and cultivated sympathies, and with a knowledge of men and things which would have won for him high distinction in whatever position fate had placed him. Even if his successors may rightly be expected to emulate his example it is proposed to provide them with no assistance independent of their own unfettered judgment in the Bill from which we have quoted. This, we think, is wrong, and it should be possible to construct a definite constitution for the proposed corporation which should at one and the same time recognise to the full the grand services of our present King and his Heir Apparent and spare them the enormous responsibilities of unfettered discretion in the management of a Fund the expenditure of which must always be regulated by numerous technical influences.

With regard to the charter proposed to be granted to the Metropolitan Hospital Sunday Fund none can suggest that THE LANCET has from its inception been other than a staunch advocate of the objects of the Fund, devoting all the influence that it has had at its command to aiding the Fund in its annual collection and to making more widely known the beneficent work which it has carried out. And in the circumstances none can blame us if we quote with approval from the memorandum addressed to the President of the Privy Council by the Council of the Metropolitan Counties Branch of the British Medical Association the following paragraph:—"That the constitution of the Metropolitan Hospital Sunday Fund fails to provide for any representation in its Council and in its Committee of Distribution of medical practitioners who could best guide it in dealing with the medical requirements of hospitals, and that the public interest thereby suffers." The reasons for this remonstrance are briefly but effectively set out in the document referred to which was published in a recent issue of the *British Medical Journal*.[1] The memorandum dwells in detail upon all the reasons for believing that certain of the institutions annually subsidised by the Metropolitan Hospital Sunday Fund are conducted in a manner directly inimical to medical practitioners and alludes to many matters of grave interest in connexion with hospital management and with the expenditure of hospital funds upon the importance of which we have often dwelt in our columns. As we have pointed out, the contribution of the medical profession to the efficiency of the hospitals and to the carrying out of their work is to be reckoned side by side with, and in combination with, that of the ever-generous public, and it is by the coöperation of the public and of the medical profession only that the hospitals of London can be maintained in the future as in the past as examples to the world of well-ordered public charity.

[1] Supplement to the Brit. Med. Jour., Oct. 13th, 1906.

The Teaching of Public Health in Medical Schools.

THE demands made upon the time and energies of the medical student increase not only from generation to generation but even from term to term, and if the medical practitioner is to hold his own in connexion with the subject of public health it is, we fear, inevitable that he should devote more time to the study of that branch of medicine than is the case at the present moment. The progress of epidemiology during the last quarter of a century has been very notable and yet the medical schools are in some cases devoting no more time to its study than formerly. In several of the London schools some twelve lectures are set apart annually to a subject which could not be at all adequately dealt with in double that number. Some of the school committees take, we are afraid, but a lukewarm interest in the matter and they do not by their support of the lectures in public health indicate to the student that preventive medicine is a subject of first-class importance. Hence, the students are prone to regard the lectures in a somewhat perfunctory light and to attend the minimum number, unless perchance, as is sometimes the case, the lecturer by the interest and information which he is able to impart to his subject succeeds in holding his class together by the force of his own individuality.

No doubt greater use might be made even of this too brief course were there more coöperation and coördination between the lecturers at each school and a clearer understanding as to which aspect of infectious diseases, immunity, and so on, is to be dealt with by each lecturer. As it is, there are probably considerable repetition and overlapping. In so far as the lectures to students are concerned the school committee should endeavour to secure the services of a lecturer who has made a study of the science of preventive medicine rather than of administration and law. The student whose ultimate intention is to embrace general practice has no need or use for the special administrative wisdom of the medical officer of health or a knowledge of the statutes relating to common lodging-houses or the disposal of refuse. It is, however, essential that he shall appreciate fully the means by which disease is spread, the relation of the diseases of animals to those of man, the value of foodstuffs, and the methods of ascertaining the causation of disease in individuals and groups. He must be versed in his duties as a medical practitioner to the State. That, therefore, the lectures should be of greatest use to the student they should be delivered, as is not always the case, when he is in the most receptive condition and when he has already learnt something of bacteriology, medicine, and pathology. Such lectures should also lay a firm foundation for a later superstructure of public health knowledge should the student subsequently elect to proceed to the diploma in public health and to devote his life to this branch of work. But we are anxious to insist upon the fact that these lectures to medical students should make no pretence to prepare candidates for the diploma of

public health and we should be glad to see the misconception which sometimes obtains upon this point rectified. For this diploma, which should be regarded as an honours certificate, much additional and detailed study is necessary in order, in the words of the General Medical Council, "to insure the possession of a distinctly high proficiency, scientific and practical, in all the branches of study which concern the public health." Preparation for this diploma may, of course, be undertaken by the lecturer on public health, who may also be in a position to give the candidates for such diploma the experience in practical work which is prescribed as part of the necessary curriculum. But there is no question that there is at times great difficulty in procuring the services of a local medical officer of health who as a whole-time officer can, consistently with his duties to his sanitary authority and to the public, devote the necessary time to the preparation of the candidate and to delivering lectures of a sufficiently high order. Hence it sometimes comes about that in the practical work the students are left rather too much to the sanitary inspector and consequently the candidates do not derive the full advantage from their association with the medical officer of health. Moreover, a thoroughly good epidemiologist and lecturer may be an imperfect administrator and *vice versâ*.

It is therefore not always desirable to bestow a vacant lectureship upon a neighbouring medical officer of health and it may sometimes be found advantageous, both for the prestige of the school and the welfare of the students, to appoint as a lecturer an epidemiologist of a high order and as a demonstrator a medical officer of health having access to a suitable district or districts; and we should like to emphasise the desirability of affording to the candidates for the diploma in public health some experience of rural as well as urban administration. The methods and standards adopted in rural districts must of necessity differ somewhat from those found practicable in urban districts and an experience of both is likely to widen the mental horizon of the future medical officer of health and to help the development of his sense of proportion. With this end in view there might be advantage in appointing as demonstrator in the practical work some county medical officer who would have access to districts of different sizes and type—that is to say, if a county medical officer with a county where there was much work to be done would care to be troubled with the candidates. It has, of course, to be borne in mind that many medical officers of health who have districts involving constant attention and who take a pride in their administration do not care to be bothered with the supervision of candidates for the diploma in public health. Moreover, the remuneration offered is such as to fail to attract the best men to apply for the post of either lecturer or demonstrator, and if such men apply they do so from other motives than immediate material recompense. It is, however, essential that the school committees should satisfy themselves that whoever undertakes the practical work is in a position to show the students sanitary administration actually in operation, and that the student should be able to examine for himself the methods of keeping the books and how best to dispose of the inspectorial staff. He should also be able to visit all parts of the district or districts and be encouraged to follow up difficult cases in the law courts. Probably the school committees are not all constituted in such a fashion as to enable them to select to the best advantage, and in these circumstances, perhaps always, they would do well to seek counsel elsewhere. It has indeed been suggested to us that as the preparation of future medical officers of health concerns the State both lecturers and demonstrators should be appointed by, or at least with the approval of, the State and there may be much to be said for this position. It might also be desirable that the General Medical Council or the Local Government Board should occasionally inspect the practical work of the candidates for the various diplomas in public health. But in the meantime we trust that the school committees may be able to allocate both more time and some fees to the teaching of this ever-expanding subject of preventive medicine.

The Workmen's Compensation Act, 1906.

No Act of Parliament designed for the benefit of the working classes has been of direct interest to so large a portion of the community as the new Workmen's Compensation Act which will come into force on July 1st and which, "except so far as it relates to references to medical referees and proceedings consequential thereon," does not apply to accidents taking place before that date. An abstract of the new statute, and particularly of the sections of interest to the medical profession, was given in THE LANCET of Jan. 12th, p. 112, and in this article Mr. ALBERT BENTHALL, whose previous contributions to the subject in our pages will be remembered by our readers, called attention to many of the innovations introduced. The duties which the new Act imposes upon the medical profession directly are for the consideration of those who may desire to become medical referees or who may fill the posts of certifying surgeons under the Factory and Workshop Act, 1901, and these will have to wait for full information until the Home Secretary and the Treasury have issued regulations with regard to them. But the medical profession at large is interested in any new law which renders the personal injuries inflicted by accidents the subject of inquiry with a view to the assessment of pecuniary compensation, and all members of the community employing domestic servants as well as all domestic servants themselves are now subjected to new liabilities or endowed with rights not hitherto enjoyed.

To quote from the definition given in the Act "'workman' does not include any person employed otherwise than by way of manual labour whose remuneration exceeds £250 a year or a person whose employment is of a casual nature and who is employed otherwise than for the purposes of the employer's trade or business, or a member of a police force or an out-worker, or a member of the employer's family dwelling in his house, but, save as aforesaid, means any person who has entered into or works under a contract of service or apprenticeship with an employer, whether by way of manual labour, clerical work, or otherwise, and whether the contract is expressed or implied, is oral or in writing." The Workmen's Compensation Acts, 1897 and 1900, repealed by the new statute, were very short, but in spite of their brevity and their apparent

simplicity have given rise to an enormous amount of litigation. So far as this may have been the consequence of such brevity, the framers of the Act of 1907 have made up their minds to avoid it, for the new measure is not a short one when its ten sections and its three schedules, occupying 28 pages in all, are considered, and if the seeming simplicity of the statute of ten years ago was intended to give the impression that it was to be understood at a glance by the workman, no such idea has inspired those who drafted the present one. Presumably it has been found that any point worth disputing always and necessarily has been fought out by insurance companies on the one side and by workmen's associations on the other, and it has been thought that, as this must continue in any case, a statute which aimed at being explicit would serve its end best, although its full comprehension by laymen might present some difficulty. No doubt a large number of those most concerned will spend 4*d.* in purchasing the official text, and it will not be long before members of the bar who have made workmen's compensation their specialty will have volumes ready containing notes and explanations dealing with its various sections. Those who study the general provisions will find, among other points, that the "first fortnight" of incapacity for which a workman has hitherto not been able to claim has been altered so that he may not ask compensation for an accident which does not disable him from earning full wages for at least a week, and that where incapacity is for less than a fortnight the first week is not to be reckoned in computing the amount. These are provisions primarily of interest to the workman but likely to give no little trouble to the medical profession. It has been noted by Mr. BENTHALL that "If it is proved that the injury to a workman is attributable to the serious and wilful misconduct of that workman any compensation claimed in respect of that injury shall, unless the injury results in death or serious and permanent disablement, be disallowed." Curiously enough, one of the most recent cases in which compensation was withheld by the court of appeal on the ground of the workman's "serious and wilful misconduct" was one in which death had taken place, so that the man's personal representatives, who now have to go without their money, would have obtained it without any such question being raised had the accident taken place after July 1st. In the case referred to the workman had obstinately refused to make use of the guard provided for a saw driven by machinery, and the accident which actually killed him might have inflicted equal injury upon his fellows. It would, perhaps, have been useful if the new Act had given some definition of "serious and wilful misconduct," as well as of other expressions of a somewhat vague nature which it employs, so as to prevent, so far as possible, the necessity of recourse to the Court of Appeal for their interpretation. The *Law Journal*, no doubt rightly, pointed out that in the case referred to, although the disobedience of the workman might constitute serious and wilful misconduct on his part, the fact that he appreciated the serious nature of his own behaviour was negatived by his conduct in persisting in it. Many will think that if the absence of such appreciation is to be put forward in argument in favour of a workman who, in spite of his employer's orders, endangers himself and others, the sooner the law makes it plain that such disobedience may be serious and wilful misconduct the better, on the ground that the interests of workmen in general demand that all possible discouragement should be given to foolish recklessness.

The general tendency of the new Act, where it relates to medical referees, is to increase the importance of that post and to render it absolutely necessary that it should be filled by those enjoying the confidence of the medical profession around them. Instances of new powers given are to be found in a provision to enable a county court judge to summon a medical referee to sit with him as an assessor, and in Section 8, Subsection *f*, which gives a right of final appeal to a medical referee in cases where an employer or workman is aggrieved by the action of a certifying surgeon under the Factory and Workshop Act. This section, which may be described as the principal one of interest to certifying surgeons, provides that certain diseases defined in the third schedule shall rank as accidents, but protects the employer by provisions designed to prevent him from being rendered liable where the disease has been contracted under other employers than himself, and defines the duties and powers of the certifying surgeon in respect of the measures to be taken with this object and in connexion with these diseases. They are anthrax, poisoning by lead, mercury, or phosphorus and their sequelæ, and ankylostomiasis. We have said enough to show that the statute which in a few months time will become operative is of importance to the medical profession and to a wide public, many of whom will only become familiar with its details and with its effects by degrees. Even without the study of its text in detail, which has been recommended above, we can see that the new Act will afford ample scope for litigation in which difficult questions of fact and of law are likely to be involved, and that it will necessitate insurance by the employer and the forming of fresh combinations of the employed to meet its requirements. To medical men, who sometimes find the full meaning of Acts of Parliament difficult to appreciate, it may be desirable to point out that, like its predecessors, the new law does not provide for the payment of medical men called in in cases of accident (except where a workman killed by an accident has left no dependants) or for damages in which the expenses of medical attendance and of nursing are taken into consideration, but only for compensation based upon the average earnings of the workman before his accident computed according to rules laid down in Schedule I. of the Act. It may also be noted in like manner that no legislative innovation has been introduced to render compulsory surgical interference with a view to reducing the employer's liability by lessening the period of the workman's incapacity, a very difficult matter to deal with satisfactorily, but with regard to which discussion has at times arisen.

DONATIONS AND BEQUESTS. — The honorary secretaries of King Edward's Hospital Fund for London have received £20,179 from the executors of the late Mr. Alfred Beit.—The late Mr. G. Phelps of Bristol has bequeathed £500 to the Royal Infirmary, General Hospital, and Children's Hospital.

Annotations.

"Ne quid nimis."

THE MEDICAL DIRECTORY FOR 1907.

THE issue of this work for 1907, so indispensable to the medical profession, appeared during the closing weeks of 1906. Comparing the edition for the current year with that for the year just passed, we find that the total number of names is 39,365, an increase of 444 over the total 38,921 in 1906. Taking the several regions into which the Directory is divided, we find that the number of names in the London list for 1907 is 6512, as against 6438 in 1906. The provincial list for England for 1907 contains 17,080 names, as against 16,976 in 1906. Wales for 1907 has 1232 names, as against 1217 names in 1906. Scotland for 1907 has 3815 names, as against 3785 in 1906. Ireland for 1907 has 2672 names, as against 2654 in 1906. Registered practitioners abroad number 4822 in 1907, as against 4666 in 1906. The medical services—naval, military, and Indian—number 3223 for 1907, as against 3165 for 1906. There is thus, it will be seen, an increase in every department of the profession which is dealt with in the Directory. The "Too Late" list for 1907 contains nine names, for 1906 20 names. The introductory article on the principal laws affecting the medical profession is as full of information and as useful as ever and the book is printed and edited with that care which the publishers, Messrs. J. and A. Churchill, have taught us to expect from them.

WEATHER IN WAR TIME.

AT a recent meeting of the Royal Meteorological Society the president, Mr. Richard Bentley, delivered an address upon the above subject. He showed how upon upwards of 300 occasions the course of history was greatly influenced by weather conditions. Often invasions were frustrated or greatly impeded, from the time of the destruction of Mardonius's fleet off Mount Athos to the attempted French invasion of Ireland. Fogs also played an important part in history. Lord Anson in a single ship loaded with Spanish treasure slipped unperceived through the entire French fleet and the great Duke of Marlborough contrived to get his army across the Scheldt in the teeth of the enemy in a river mist. Reference was made to the difficulties overcome in crossing the snow on the Alps by Hannibal, Napoleon, Massena, Souvaroff, and Macdonald, and also to the march of Colonel Kelly's Sikhs to the relief of Chitral. Mention was also made of the hailstorm which smote Richard I.'s men at Ascalon, of the sleetstorms at the battles of Hohenlinden and Eylau, and of the wild weather during the memorable retreat from Moscow. The important part played by ice was shown by the Swedish army on one occasion invading Denmark across the frozen Baltic and by the Russians in 1809 similarly crossing over the frozen sea to Sweden; also by the ice inclines in the passes prepared to hinder the Hungarians from crossing the Balkans and the great ice forts built by the Austrians in the Tyrol which could neither be clambered up nor shattered and were proof against all the French attacks. Many other instances were given, but we may mention two which are at any rate not referred to in the official abstract before us and are sufficiently remarkable to deserve special notice. The one is the defeat of the barbarians by M. Aurelius, A.D. 176, owing to a sudden hailstorm which, according to ecclesiastical history, came on at the prayer of the Melitene Legion, afterwards known as the Legio Fulminatrix, and the other the sudden frost and gale which upset the plans of Maurice for the combined attack by water and land upon Antwerp in 1622, then in the hands of the Spaniards. From a medical point of view weather has many times affected the course of campaigns by being favourable to the spread of epidemics such as typhus and typhoid fevers and more especially when the campaign included a long siege. Abnormally wet or dry seasons have also brought about their respective effects upon armies. Extreme heat and drought, leading to heat exhaustion and parching thirst, were in great measure responsible for the terrible disaster to the arms of Portugal at Alcacerquivir in 1578.

THE STRENGTH OF SURGICAL SUTURES.

M. A. Astruc has published in the *Journal de Pharmacie et de Chimie* of Nov. 16th, 1906, an interesting article on the determination of the strength and other physical characters of catgut, silk, and other surgical sutures. The strength of catgut and other materials is usually determined by ascertaining how much weight is required to break the stretched fibre, but M. Astruc points out that sutures as employed by surgeons are not submitted simply to direct tension, the knots having to be taken into account. The breaking strain is not the same in the case of a simple thread as it is when a knot is present. Hence M. Astruc has determined the breaking strain for both simple and knotted sutures. It is interesting to note that the figures given demonstrate the slight superiority of a surgeon's knot over simple knots. The following table gives a few of these figures:—

Breaking Strain (in kilogrammes).

Size of sutures.	Simple suture.	Suture containing a surgeon's knot.	Suture containing a simple knot.
	Catgut.		
000	3·0	2·7	2·4
1	7·3	5·5	5·0
5	11·6	7·7	7·1
10	33·0	17·5	16·5
	Silk.		
000	3·0	2·2	2·0
1	4·9	3·5	3·4
5	10·4	9·4	9·3
10	18·7	17·1	17·0

These figures justify the conclusion that the force required to break a suture provided with a knot represents only a fraction of that required to break a suture which is simply stretched. This is particularly seen in the case of the thicker threads of catgut; thus a No. 10 catgut suture breaks under a strain of 33 kilogrammes when simply stretched, whereas the presence of a surgeon's knot causes it to break under a strain of 17·5 kilogrammes. But in the case of silk the presence of a knot only produces a relatively slight weakness in the threads.

MEDICAL CANDIDATES FOR THE LONDON COUNTY COUNCIL.

EVER since the London County Council came into existence it has numbered medical men among its members. Their presence, indeed, has been urgently necessary in view of the work which the Council has to do. It supervises the administration of the Public Health (London) Act, 1891. It also administers within the County of London the Infant Life Protection Act, the Inebriates Act, and the Contagious Diseases (Animals) Acts, manages six large lunatic asylums, appoints coroners, is responsible for the main drainage of the metropolis, and controls the education, mental and physical, of London's children. In all this work the advice of medical councillors

must often prove extremely valuable and sometimes indispensable. Even in such matters as the maintenance of the parks and the provision of means of recreation and locomotion important medical questions must frequently arise. Sir William J. Collins, M.P., is now retiring from the London County Council after many years' service, but three other members of the medical profession are announced as likely to seek re-election on March 2nd. These are the deputy-chairman of the Council (Dr. E. B. Forman) who will stand for South Kensington, Dr. A. Salter (Bermondsey), and Dr. R. M. Beaton (North St. Pancras). In addition, Dr. W. Lansdale is a candidate for West Newington, Professor W. R. Smith for St. George's-in-the-East, Dr. John Davies for Hoxton, and Mr. Percy Vosper for West St. Pancras. The candidates also include a non-medical councillor well known to many members of the profession in the person of Mr. R. A. Robinson, who has recently resigned the presidency of the Pharmaceutical Society of Great Britain in order to devote more time to the leadership of the "Municipal Reform" party at the coming election of the London County Council.

THE ADVANTAGES OF INVESTIGATING THE UNLIKELY.

In the *Journal of the Society of Chemical Industry* of Dec. 31st, 1906, there appears a report of a discourse by Sir William Ramsay on the Advantages of Investigating the Unlikely. He drew attention to the unsuitableness of the old legal saw, "*De minimis non curat lex*," as a motto for a man of science. On the contrary, science and industry must attend to trifles. It is possible, he supposed, in real life to judge what are trifles and what are not, but in science it is not always easy to draw the distinction. A man who studies the markings on a butterfly's wing or counts the bristles on the antennæ of a bee may not appear to a chemist to be doing anything important, but such markings may have led a Darwin or a Wallace to propound the theory of natural selection and the bristles may be the organs of a sense unknown to us by means of which the bee gains impressions from some form of radiant energy incapable of impressing our grosser or differing sense-organs. It would thus seem that there are no negligibles in nature. Sir William Ramsay referred to Faraday's observation that a current flowed when a magnet was withdrawn from a coil of wire. This simple experiment led the way to the enormous electrical developments of modern times, including countless dynamos transmitting the energy which furnishes us with light and power, and which may some day be utilised for distributing heat over our cities. After illustrating his theme by reference to his own work on the gases of the atmosphere Sir William Ramsay drew attention to the advantages of attempting such investigations. First of all, it satisfies the curiosity which members of the human race possess to enlarge their knowledge. Next, it correlates knowledge and by supplying missing links it increases the value of what is already known. Lastly, it shows that more is sometimes achieved by speculative science—trying for results against long odds—than in slowly and laboriously accumulating results which could have been foretold. Sir William Ramsay's remarks apply with force to the study of medical problems. The man of science should, above all, learn to approach a problem with an open mind; a pre-conceived opinion may be fatal to the elucidation of the truth. The mere mental act of deciding whether or not a problem affords a promising subject for investigation is a form of preconceived opinion and as such should be avoided. The correct attitude to adopt is doubtless that of the man who perceives where there are gaps in human knowledge and devotes his energies to filling in those gaps. The early experiments of Pasteur might not to many investigators appear to offer important results but they led to the opening out of the new science of bacteriology, one of the most important developments of which was the discovery of the antiseptic system of surgery.

THE MEDICINAL ACTION OF ARISTOLOCHIA CYMBIFERA.

A PRIX Martin-Damourette has been awarded to M. Lucien Butte for his researches on the physiological and therapeutic action of aristolochia cymbifera, an account of which is given in the *Comptes Rendus* of Dec. 17th, 1906. The plant is highly esteemed under the name "guacho" by the people of Mexico as a sovereign remedy in cases of snake-bite. M. Butte has shown that it possesses no value in this respect, though it has other valuable properties due to the presence of an active resinous substance, guachol. It is a powerful analgesic; it also exerts a retarding influence upon nutrition and lowers the temperature. On this account guachol is recommended by M. Butte as a therapeutic agent in many painful affections of neuralgic origin.

SUNSHINE DURING 1906.

ALL the following figures, with the single exception of those for Shanklin, have been compiled from the reports published either weekly or monthly by the Meteorological Office and are therefore trustworthy. As the results are all obtained (except at Shanklin) by the Stokes-Campbell burning recorder they are strictly comparable. The notable excess of hours at Shanklin is probably, but not necessarily, due to the use of a different kind of recording instrument—the Jordan photographic recorder, which is sometimes more sensitive. It was generally recognised that last year was more than usually bright and the figures amply bear out the popular opinion. Not only was the sunshine much in excess of the average, but except at some places in the north-west it was also greatly in excess of that of 1905, which,

Sunshine during 1906.

—	Total number of hours.	Difference from average.	Difference from 1905.
Aberdeen	1525	+111	+165
Scarborough	1581	*	+107
Lowestoft	1968	*	+159
Clacton-on-Sea	1996	+129	+306
Margate	1874	+346	+290
Folkestone	1979	*	?
Hastings	1991	+210	+247
Brighton	1868	+130	+192
Bournemouth	1969	*	+152
Jersey	2003	+ 58	+270
Torquay	2028	+300	+251
Shanklin	2217	*	+106
Falmouth...	1933	+157	+258
Llandudno	1683	+263	+105
Rhyl	1767	*	+140
Blackpool...	1679	+317	- 79
Douglas, Isle of Man ...	1697	+101	- 35
Dublin	1574	+ 40	+ 97
Llangammarch Wells ...	1413	*	?
Bettws-y-Coed	1374	*	+121
Glasgow	1174	+ 82	- 18
Manchester	1143	*	+118
Birmingham	1251	*	+ 79
Nottingham	1453	+ 64	+ 48
Bath	1808	+340	+267
Tunbridge Wells	1963	*	+241
London	1513	+386	+223

* No trustworthy average.

again, was a bright year except on certain parts of the south and south-west coasts. It is very satisfactory to find that the greatest excess on the average is in London (Westminster), where the aggregate number of hours, 1513, represents an excess of more than an hour per day. The metropolis was also brighter than Nottingham, very much more sunny than either Manchester or Glasgow, and nearly as bright as Dublin. The most sunny resorts were Shanklin, Torquay, and Jersey, where the aggregate number of hours was nearly double that recorded at the dullest places—Glasgow and Manchester. But there was very little difference between the resorts on the east, south-east, and south coasts regarded generally, the only places having less than 1900 hours being Margate and Brighton. During 1905 the most sunny spot in the kingdom was Lowestoft and again last year it was very high on the list. In the north-west the sunshine was more prevalent at Rhyl, Llandudno, Douglas, Isle of Man, and Blackpool than elsewhere, but all these had about an hour per day less than the south and south-east of England. The two inland Welsh resorts in Wales given in the table were much more cloudy than Bath and Tunbridge Wells, and were even less sunny than London. Considering its distance from the coast Tunbridge Wells was exceptionally bright, its total number of hours, 1953, being only a trifle less than that at Bournemouth. The only place representing the east of Scotland, Aberdeen, enjoyed but little less sunshine than Scarborough, and more than London and many parts of the English midlands.

SPONTANEOUS AMPUTATION OF AN APPENDIX VERMIFORMIS IN THE SAC OF A FEMORAL HERNIA.

IN the *Albany Medical Annals* for January Dr. F. G. Schaible has reported a case of a very peculiar condition—spontaneous amputation of the vermiform appendix in the sac of a femoral hernia. Since the radical cure for hernia has become customary a large number of cases has been recorded in which the appendix, alone or accompanied by omentum or intestine, occupied a hernial sac. In the majority the sac has been a right inguinal one. Pathological conditions of the herniated appendix are not uncommon. According to Jopson the tendency to inflammation is greater than in the non-herniated appendix. In many cases symptoms supposed to be due to an inflamed or gangrenous strangulated hernia were due to an inflamed or gangrenous appendix which had become adherent to a hernial sac. But no case of spontaneous amputation of the herniated appendix such as the following appears to have been recorded. A woman, aged 80 years, was admitted into hospital. She first noticed a small lump in the right groin about eight years before. This gradually increased to the size of a goose's egg and was recognised as a hernia. At first it produced no symptoms, but later, on the entrance of a portion of intestine into the sac, there were a feeling of weight and extreme pain. At such times she was able to reduce the hernia and was then relieved. She had worn a truss for three years. The hernia came down about every six or eight months. Before admission the patient was seized with slight pain in the right groin which increased until it became intolerable. She did not vomit; the bowels were constipated and the hernia was irreducible. There was a sausage-shaped tumour in the right groin which measured 8·5 by 3 5 centimetres. On opening the sac it was found to contain from three to four inches of ileum, very congested and almost black. The neck of the sac was very tight, being of the size of a finger, and it was necessary to incise the constricting band somewhat. Some hot saline solution was poured on the gut and the colour began to return with contraction of muscular fibres. After considerable efforts the gut slipped back into the abdomen. A body which was considered to be a properitoneal lipoma was attached to the inner surface of the sac. On further examination it appeared to be a rather short obliterated appendix with smooth ends and without cæcal attachment. It seemed to have been amputated by pressure and a definite mesentery was attached to it. A tongue of omentum was removed with the sac. Uninterrupted recovery followed. Examination of the specimen showed attached to the sac a mass of adipose tissue resembling a meso-appendix. Attached to the latter and slightly imbedded in it was a cord-like structure which measured four centimetres in length and half a centimetre in diameter. Its surface was smooth, glistening, and pink-grey and it was rounded at both ends. To these ends were attached by fibrous bands small masses of adipose tissue. Adherent to the hernial sac at its under surface by a long fibrous band was a piece of omentum. Microscopic examination of the appendix showed that the lumen was obliterated and the mucosa completely replaced by fat and connective tissue containing a few lymphoid cells. The musculature was slightly atrophied and there was a slight infiltration of lymphocytes and eosinophiles. The peritoneal coat showed many small hæmorrhages. That the structure was appendix and not some other obliterated tubular structure or ligamentous mass was definitely shown by the character and arrangement of its outer coats. Dr. Schaible thinks that the obliteration of the appendix took place before it entered the sac and that the amputation was due to gradual constriction of the proximal portion of the appendix between the divisions of the fascia lata forming the boundaries of the femoral ring, aided perhaps by the pressure of the truss.

THE MULTUM IN PARVO MEAL.

IT is a notion fondly cherished by some people that the day will come when the human race will subsist entirely on highly concentrated food. The time occupied in eating the daily meals will be saved by swallowing a tablet of concentrated essence and all questions of fastidiousness for food will be banished while the dyspepsia arising from an over-bulky and hastily swallowed meal will finally disappear. The idea is, of course, utterly fallacious and plainly opposed to sound physiological teaching. Such a dietetic consummation thus innocently entertained would probably end in the extinction of the race by disease as a sequence of inanition. The fact is that the volume of food serves a definite purpose in the body. Highly concentrated foods are prone to be very irritating to the digestive organs and they also tend to exhaust the secretory powers of the stomach, the digestive juices being poured out in a quantity far in excess of the requirements of that food and thus secretory energy, which is the key to assimilation, is uselessly spent. Concentrated meat essences containing merely the extractives of meat are, for example, the most powerful exciters of gastric secretion that we possess but when partaken of exclusively they avail nothing in the direction of real nutrition and lead most likely to serious waste of tissue; in a word, to starvation. They serve admirably, however, as a kind of condiment or adjuvant to food, preparing the ground for its reception and digestion. Hence soup is the first item in the physiologically well designed meal. When kept within reasonable limits the bulkiness of food excites a healthy stimulus to the muscular action of the stomach and the bowels, and altogether the indications are plain that the digestive organs are not adapted for dealing with highly concentrated food. Food must have, so to speak, a physiological ballast before it is acceptable to the digestive processes. The simplest way of reducing the bulk of most foods is by depriving them of their natural

moisture. Eight pounds of mutton or beef would thus be reduced to two pounds of dry substance but the water must be replaced to a large extent before the meat can be cooked or eaten. There are, of course, particular cases, as, for example, in illness, in which it is necessary that the diet should be sparing in quantity and yet highly nutritious in quality but in health the use of concentrated foods is physiologically absurd, if not mischievous. The time when men will take for their meals, and be satisfied with, as much concentrated food as will cover a threepenny-piece can never be, so long as the human mechanism is as it is and physiological laws are inexorable.

INVALID TRAVEL IN SOUTHERN EUROPE.

"WHEN will the Italian Government, in the management of its railways, put in practice the police regulations so justly demanded by the outside world for the safety of passengers?" This (writes an Italian correspondent under date Jan. 19th) is the question put by the *Gazzetta del Popolo* of Turin to its exceptionally numerous and influential *clientèle* at the close of an article on the recent murderous assault on an English lady on the much-frequented line between Turin and Modena. When, indeed? For the last six months the inconveniences (to put it mildly) that have followed the transfer of the Italian railways from private companies to the State have been bad enough to deter not a few of the travelling public from using them—one of the latest, and not least unpleasant, of these "inconveniences" being the deadly cold complained of by first- and second-class passengers from the want of adequate heating apparatus. The other day, between Milan and Rome, the inmates of a first-class carriage had to endure the bitter cold of an unheated train as far as Piacenza where at last footwarmers of a primitive type were provided as the *caloriféres* were found to be quite out of gear. Serious enough in the case of invalids coming in quest of warmth to the "Sunny South," this "inconvenience" is but trifling compared with the loss of life and injury to limb incurred on the same network, where there have been accidents enough, more or less fatal, to warrant the Milanese *Secolo* in introducing its report of them under the headline "Una Giornata di Scontri" (a day of collisions). And now, as if unpunctuality, discomfort, and general "inconvenience" were too little of a deterrent, the recent "scontri" have been enhanced by something far worse than the all too notorious luggage robberies—namely, a dastardly assault by which an English lady, esteemed for her proficiency and devotion as a nurse in the Boer war, is now lying in a critical state at the Chambery Hospital. Providentially, the promptitude and skill with which surgical intervention came to her relief make her recovery so far hopeful that she has been able to describe her assailant so clearly as to put the police on his track and to justify the newspapers in announcing his arrest as imminent. Coincidently with the chorus of indignant protest which the Italian press of all political shades is addressing to the Government for immediate and effective reform in its railway management we read in the same journals of meetings of the Association for Promoting the Influx of Foreigners, meetings at which, among the "attractions" and "lures" held out to the English-speaking world, the improvement of the railway service (to say nothing of better hotel accommodation and a less persistent resort to tinned meats and vegetables in the cuisine) is hardly ever mentioned. The association in question is a wealthy as well as an influential body; on its committee senators and members of the Chamber of Deputies are conspicuous for their social weight and public spirit and the names of some of the leading hotel proprietors and merchants are also *in évidence*. Let it bring its undoubted authority and influence to bear on the Government, in Parliament and through the press; let the administration feel its pressure at elections, supplementary as well as general; let it, in short, act with the energy and force to be expected from an interest—that of the "foreign import" (as the travelling world is somewhat cynically termed)—from which Italy derives a third of her annual revenue, and then we may see the railway service and the "accommodation" it leads up to become what they ought to be—a ready, a comfortable, and an attractive means of bringing the unique resources of Italy as a health resort, combining mental recreation with physical enjoyment, within the reach of a far more numerous *clientèle* than she has ever hitherto had. As it is, access by railway, long somewhat of "a chastened joy," has, thanks to accidents, luggage robberies, and murderous assaults, become so much of a deterrent that the press is more than justified in demanding from the Government an answer to the old, old question: "Quousque tandem?"

ATMOSPHERIC NITRATE.

WE have informed our readers from time to time of the progress that has been made in regard to fixing the nitrogen of the air and converting it into nitrate for agricultural and industrial purposes. The announcement is now made that Professor Kowalski and Professor Moscicki of the University of Freiburg have succeeded in obtaining nitric acid from the air in a simple, direct, and economical way, thus realising the remarkable prediction made by Sir William Crookes as to the production of agricultural fertilisers from the air in his presidential address at the meeting of the British Association for the Advancement of Science at Bristol in 1898. It may be surmised that the new discovery relates to the economic production of nitrate from the combustion of nitrogen by means of an intense spark discharged through air, the electric energy being derived from water power. Further developments will be awaited with the keenest interest, since this announcement obviously bears on the great question of the world's food-supply. Cavendish little thought that his classic experiment in which he showed that nitrous fumes were formed on passing electric sparks through the air was going to have such immense importance in the practical affairs of the world. The country which possesses an illimitable field of natural power will, of course, outstrip all others which are compelled to rely on artificial power in the new manufacture, while it may be anticipated that the natural sources of nitrate, as, for example, those in Chili, will largely be abandoned except for relatively local application.

THE ROYAL SANITARY INSTITUTE.

THE usual course of lectures and demonstrations for sanitary officers will be given in connexion with the Royal Sanitary Institute, London, during the months from February to May. The lectures are held in the Parkes Museum, Margaret-street, London, W., at 7 P.M., generally on Mondays, Wednesdays, and Fridays, with a few exceptions, and the inspections and demonstrations take place generally on Mondays, Wednesdays, and Saturdays, on the first two mentioned days either at the Parkes Museum at 6 P.M. or elsewhere at 2 or 3 P.M., and on Saturdays elsewhere at about the last-named hours. The course is divided into two parts. Part I. comprises four lectures on elementary physics and chemistry in relation to water, soil, air, and ventilation, and meteorology; 21 lectures on Public Health Statutes, the practical duties of a sanitary inspector, municipal hygiene or hygiene of communities, and building construction in its sanitary relations and local physical conditions. The inspections and demonstrations in

connexion with the lectures include visits to disinfecting stations, dairy premises, municipal depôts, artisans' dwellings, offensive trades, waterworks, common lodging-houses, sanitary works in progress, and refuse and sewage disposal works. Part II. of the course consists of seven lectures on meat and food inspection, including taking samples of water, food, and drugs for analysis. Practical demonstrations of meat inspection are given. The fee for Part I. is £2 12*s.* 6*d.*, for Part II. £1 1*s.*, or for the complete course £3 3*s.* Members and associates of the institute are admitted to the lectures without payment but cannot introduce friends.

RADIUM IN OPHTHALMOLOGY.

A LAUDATORY article on the beneficial effects of radium emanations in various diseases of the eyes appears in the *Clinique Ophtalmologique* for December, 1906, from the pen of Dr. Thiébault of Algiers, who appears to have had considerable experience in the application of this remedy. The cases in which he has observed great improvement in the symptoms are in those of epithelioma, of episcleritis, both superficial, circumscribed or nodular (*boutonneuse*), or general, and of trachoma. He states that he obtained the complete removal of rodent facial epithelioma with a pre-auricular ganglion of eight months' duration and of seven millimetres in diameter by exposure of the ulcer to the radium emanations for 30 minutes at a time for eight weeks. In a case of superficial episcleritis complete recovery followed three applications for three or four minutes to each nodule. A case is recorded of diffuse scleritis of a serious character affecting both eyes and presenting a remote resemblance to leprosy, the cornea being thickened and opaque with large sinuous veins in some parts and a xerotic condition in others. Here repeated applications of radium gradually, so to speak, liquefied the xerosis in the course of four months and with several relapses, the sclerotic resumed its pearly aspect, the vessels resumed their ordinary size, the conjunctiva was easily made to glide on the sclerotic, and, though the cornea remained opaque to the observer, vision, which had been completely lost at the height of the attack, was so far recovered that the patient could dimly see fingers at the distance of a foot and could recognise bright colours. The case did not undergo further improvement by the administration of adrenalin. Considerable success has also attended the use of radium in cases of trachoma, of which he reports several. He thinks that in the future radium-therapy will be largely and successfully employed.

DEATH FROM AN ELECTRIC SHOCK WHILST HANDLING A TELEPHONE RECEIVER AND AN ELECTRIC LIGHT LAMP.

IN the *Boston Medical and Surgical Journal* of Dec. 20th, 1906, Dr. A. E. Paine has reported the following extraordinary case which reveals a new danger from the modern development of the use of electricity for lighting and telephones. He was summoned to an oil works where the superintendent was stated to be dead. On arrival at the office he found that the employees had been too frightened and did not dare to touch the telephone. The superintendent was lying on his back with the telephone by his side. The cord of the receiver was broken and the latter lay on the floor. To the right of the body was a broken incandescent desk lamp which was suspended from the ceiling by a cord. The bookkeeper said that the superintendent had telephoned to his house that he would not come home for a little time, and had just hung up the receiver when a crash and a flash of light occurred. On going into the inner office the bookkeeper found the superintendent lying on the floor. He was not positive whether the telephone or the electric lamp cord was in the hand of the deceased, but on trying to disengage it he received a shock which threw him against the wall. Examination of the body showed a burn on the inside of the thumb, a deep burn extending to the bone on the forefinger near the knuckle, and a deep burn in the palm extending nearly to the bone. The telephone cord, which was not properly insulated and consisted of wire covered by light webbing, was burned through. The nickel-plated handle for holding the receiver of the telephone was burnt on the inside. Dr. Paine thinks that when the deceased was putting on the receiver his hand came in contact with the metal handle, that at the same time he was holding the desk lamp in order to move it, and that he received the charge from the electric light supply. Instantly the plugs at the telephone exchange were blown out. At the inquest an electrical expert explained that this was due to the fact that the telephone wire was not powerful enough to stand the amount of electricity passed into it. There were 3500 volts on the principal wire and 1500 would be sufficient to kill. The telephone wires in the ordinary way simply carried electricity from batteries amounting to about four volts. It seems that at some point (the locality of which is not stated) the electric and telephone wires crossed and were swayed together by the wind. The insulation was there burned off and the whole 3500 volts passed into the telephone wire.

POOR-LAW REFORM COMMISSION (IRELAND).

IN THE LANCET of Nov. 24th, 1906, we commented in a leading article upon the report of the Viceregal Commission appointed by the then Lord Lieutenant of Ireland in 1903 to examine into the question of Irish Poor-law reform. We quoted a passage from the report pointing out that the establishment of a State medical service for Ireland would appear to involve the payment by the State of the whole instead of half of the salaries of medical officers as at present. An Irish correspondent now writes informing us that in reality the State pays three-quarters of the whole cost and not half. He bases his argument upon the following method of procedure and figures. When a board of guardians wishes to raise money for the purposes of Poor-law expenses the board makes an estimate which is submitted to the Local Government Board and a demand note is sent to the county council which is also in communication with the Local Government Board. The Local Government Board then pays the county council such sums in relief of local taxation as the council may be entitled to. The county council then deducts the amount due to the guardians in respect of union charges from the amounts specified in the demand note and then strikes a rate to raise the balance required. The amount so raised, together with the amount paid by the Local Government Board in relief of local taxation, is then placed by the county council to the credit of the guardians who pay the medical officers. According to the Local Government (Ireland) Act of 1898 the income of the county council is derived from two sources (Section 51)—a levy in the form of a poor-rate and certain free grants in relief of local taxation. These free grants are: 1. A grant from the account for the reduction of local taxation, the funds of which are supplied by certain excise and other licence duties plus a grant of £79,000 per annum (Section 58). It is from this account that the Local Government Board pays the half of the medical officers' salaries and half the cost of medicines and certain educational expenses (Section 58). 2. A free grant from the agricultural grant (Section 48). Thus it works out that half the salary of medical officers is paid by the Local Government Board through the account for the reduction of local taxation. The remaining half of the salary is a charge on the poor-rate, but the poor-rate is supplied by a

further free grant from the agricultural grant, so that the county council really only has to pay about half the sum levied for poor-rate. Our correspondent further gives us the actual figures of an Irish union in a recent year, which are as follows. Demand note of the guardians, £4420. This was made up as follows:—

	£	s.	d.
(1) Per agricultural grant, Section 48	1363	10	0
(2) Half refund of educational and medical expenses (from Account for Reduction of Local Taxation), Section 58.	484	0	0
(3) Government grant other than agricultural, such as Probate and Estate Duties ... —	472	0	0
Total grants	£2319	10	0
Amount raised by County Council by means of poor-rate	2100	10	0
	£4420	0	0

The total amount of grants in aid was thus £2319 10s., while the county council levied £2100 10s., the amount levied by the county council being thus £109 10s. less than half of the total amount, or in other words the State contributions amount to £219 more than the sum raised by the county council poor rate.

UNIVERSITY COLLEGE, LONDON.

A COURSE of eight lectures on Certain Fundamental Problems in Physiology common to Animals and Plants, to be given by Dr. W. M. Bayliss, F.R.S., on Wednesdays, at 5 P.M., began on Jan. 23rd. The phenomena to be dealt with will be taken as far as possible in the following order: Assimilation of Carbon, Enzyme Action, Mechanism of Oxidation, Properties of Colloids, Permeability of Membranes, and Transmission of Stimuli. These lectures are open to all students of the University of London, also to qualified medical men and to such other persons as are specially admitted.

THE EARTHQUAKE IN JAMAICA.

THE calamity which has overwhelmed the city of Kingston in Jamaica exhibits all the appalling incidents which are almost necessarily associated with an earthquake of any severity. There are the wholesale destruction of buildings, the hopeless feeling of insecurity, the almost universal outbreak of fire, and the sinking of a portion of the land into the sea. The medical aspects of the results of an earthquake in a densely inhabited region are, of course, serious. Apart from the grievous injuries inflicted by masses of falling buildings and the burns from the fire which always breaks out the more remote results have to be considered. Want of food and exposure, in addition to the lowering of the resisting powers of the body by mental anguish, lead to many deaths from pneumonia or other acute diseases, while the presence of numbers of unburied dead and the almost certain defilement of the water-supply may give rise later to severe epidemics. Sir James Crichton Browne, however, writing in the *Times* of Jan. 19th, points out that in one particular the disaster may prove a blessing in disguise by its having removed in a very thorough manner a number of grossly insanitary houses. The rebuilding of the city therefore offers an opportunity for greatly improving its general hygienic conditions. We may add that the general behaviour of the authorities seems to have been excellent and that everything possible is being done in collecting and burying the bodies of the dead, but with regard to the wounded and injured the medical resources of the island are apparently seriously strained. This being so we can only regret the unfortunate misunderstanding which appears to have arisen between the Governor and the admiral in command of the United States squadron which at first rendered admirable help. Among the numerous victims was Dr. Thomas Savage of Birmingham, of whose career we give details in another column. Valuable aid was also given by Mr. Arthur Evans, M.R.C.S., L.R.C.P., the surgeon of the steamship *Port Kingston*, which was converted into a hospital by leave of Sir Alfred Jones.

A COMPLIMENTARY dinner is being organised to commemorate the bestowal by the King of the honour of C.M.G. on Mr. Pietro Michelli, the Secretary of the Seamen's Hospital Society, Greenwich. The committee consists of Sir Patrick Manson, Sir William Burnett, Sir Frederick Young, Mr. Perceval A. Nairne, Professor R. T. Hewlett, and Mr. James Cantlie. The dinner will take place at the Trocadéro Restaurant, London, on Friday, Feb. 15th next. Mr. Nairne, the chairman of the Board of Governors of the Seaman's Hospital Society, will preside. We are authorised to state that anyone who has not been reached by circular and who would like to be present can obtain a dinner ticket at the price of one guinea on application to the honorary secretaries at the offices of the Seamen's Hospital Society, 13A, Cockspur-street, Charing Cross, London.

A TELEGRAM from the Governor of the Mauritius received at the Colonial Office on Jan. 18th states that for the week ending Jan. 17th there were 6 cases of bubonic plague and 4 deaths from the disease.

VITAL STATISTICS.

ANNUAL BIRTH-RATES AND DEATH-RATES FROM THE SEVEN CHIEF EPIDEMIC DISEASES IN ENGLAND AND WALES DURING 1906.

—	Annual rates per 1000 living. Births.	Deaths from all causes.	Deaths from seven chief epidemic diseases.	Infant mortality:—Annual death-rate of infants under one year per 1000 births.
England and Wales	27·0	15·4	1·73	133
76 great town	27·9	16·0	2·24	146
142 smaller towns	26·5	14·4	1·70	138
England and Wales, less the 218 towns	26·3	15·0	1·18	115

Note.—These figures are provisional.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8747 births and 5549 deaths were registered during the week ending Jan. 19th. The annual rate of mortality, which had been equal to 22·4 and 20·7 in the two preceding weeks, further declined to 18·1 in the week under notice. During the first three weeks of the current quarter the death-rate in these towns averaged 20·4 per 1000, the rate during the same period in London being 21·4. The lowest death-rates in the 76 towns during last week were 8·7 in Handsworth, 9·0 in King's Norton, and 9·1 in West Bromwich and in Reading; the rates in the other towns ranged upwards to 25·8 in York, 26·0 in Hull, 27·6 in Rotherham, and 35·3 Middlesbrough. The 5549 deaths in the 76 towns showed a further decline of 799 from the high numbers returned in the two preceding weeks, and included 381 which were referred to the principal epidemic diseases, against 478 and 423 in the two previous weeks; of these, 138 resulted from measles, 92 from whooping-cough, 56 from diphtheria, 34 from scarlet fever, 33 from diarrhœa, 28 from "fever" (principally enteric), and not one from small-pox. The deaths from these epidemic diseases were equal to a mean annual rate of 1·2 per 1000 in the 76 towns; the rate in London from the same diseases did not exceed 1·1. No death from any of these epidemic diseases was registered last week in Bristol, Croydon, Gateshead, Hornsey, or in four other of the 76 towns; the annual death-rate

therefrom, however, ranged upwards to 4·3 in Hull, 5·1 in St. Helens, 5·9 in Warrington, and 7·5 in Rotherham. The fatal cases of measles showed a further decline, but caused a death-rate exceeding 3·0 per 1000 in Hull, St. Helens, Warrington, and Rotherham. The deaths from whooping-cough showed the largest proportional excess in York, Leyton, Hastings, and Willesden. The only noteworthy excess in the fatality of scarlet fever occurred in South Shields; and of "fever" in Huddersfield. The 56 deaths referred to diphtheria showed a further considerable decline from recent weekly numbers; they showed the largest proportional excess in Aston Manor. No case of small-pox has been under treatment in the Metropolitan Asylums Hospitals since the end of June last. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had been 3846, 3707, and 3521 in the three preceding weeks, had further declined to 3405 at the end of the week under notice; 325 new cases were, however, admitted to these hospitals during the week, against 309 and 285 in the two previous weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 718 and 620 in the two preceding weeks, further declined to 446 in the week under notice, but exceeded the corrected average in the corresponding week of the last five years by 88; 73 deaths were also directly referred to influenza, against 83 in the previous week. The causes of of 52, or 1·0 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in London, Leeds, Bristol, West Ham, Newcastle-on-Tyne, Salford, and in 45 other of the 76 towns; the proportion of uncertified deaths, however, again showed a marked excess in Liverpool, Birmingham, South Shields, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 22·9 and 20·8 in the two preceding weeks, further declined to 20·5 in the week ending Jan. 19th, but exceeded the mean rate recorded in the 76 English towns by 2·4. The rates in the eight Scotch towns ranged from 15·0 and 17·1 in Perth and Paisley, to 22·7 in Dundee and 23·9 in Aberdeen. The 713 deaths in the eight towns showed a further decline of eight from the numbers returned in the two preceding weeks, and included 80 which were referred to the principal epidemic diseases, against 71 and 67 in the two previous weeks. These 80 deaths were equal to an annual rate of 2·3 per 1000, which exceeded by 1·1 the rate from the same diseases in the 76 English towns; they included 23 which were referred to whooping-cough, 19 to "fever," 19 to diarrhœa, 11 to diphtheria, seven to measles, one to scarlet fever, and not one to small-pox. The 23 fatal cases of whooping-cough showed a further increase upon recent weekly numbers, and included 12 in Glasgow, five in Aberdeen, and three in Greenock. The deaths referred to "fever" also showed a marked increase, including 16 in Glasgow and one each in Edinburgh, Dundee, and Leith; 14 of these deaths in Glasgow and the fatal cases returned in Edinburgh and Leith were certified as cerebro-spinal meningitis. The fatal cases of diarrhœa also showed an increase, including six in Edinburgh, five in Glasgow, and four in Aberdeen. Of the 11 deaths referred to diphtheria five occurred in Glasgow, three in Edinburgh, and two in Aberdeen. Measles caused four more deaths in Aberdeen and two in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had increased in the four preceding weeks from 119 to 185, declined again to 177 in the week under notice, but exceeded the number returned in the corresponding week of last year by 67. The causes of 25, or 3·5 per cent., of the deaths registered during the week in the eight towns were not certified or were not stated; the mean proportion of uncertified deaths in the 76 English towns during the same week did not exceed 1·0 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been equal to 31·9 and 29·0 per 1000 in the two preceding weeks, further declined to 27·5 in the week ending Jan. 19th. During the first three weeks of the current quarter the death-rate in the city averaged 29·5 per 1000, the mean rate during the same period being only 21·4 in London and 21·1 in Edinburgh. The 206 deaths of Dublin residents during the week under notice showed a further decline of 11 from the high numbers in the two previous weeks, and included 11 which were referred to the principal epidemic diseases, against 19 and eight in the two preceding weeks. These 11 deaths were equal to an annual rate of 1·5 per 1000, against 1·1 in London and 2·0 in Edinburgh. These 11 deaths from the epidemic diseases in Dublin last week included five from measles, two from "fever," two from diphtheria one each from measles and diarrhœa, and not one either from small-pox or scarlet fever. The fatal cases of whooping-cough, "fever," and diphtheria showed an increase, while those of measles were fewer than in any recent week. Ten inquest cases and eight deaths from violence were registered during the week; and 77, or 37·8 per cent., of the deaths occurred in public institutions. The causes of ten, or 4·9 per cent., of the deaths registered in the city during the week were not certified; the percentage of uncertified deaths in the week under notice did not exceed 3·7 in Edinburgh, and all the deaths in London were duly certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff Surgeons: J. C. Wood to the *President*, additional, for three months' course at West London Hospital; F. H. A. Clayton to the *Hyacinth*; W. H. Daw to the *Vindictive*; and P. H. Boyden and H. Spicer to the *President* for three months' course at West London Hospital. Surgeons: H. L. Geoghegan to the *Hyacinth*; and J. Verdon to the *Victorious*.

ROYAL ARMY MEDICAL CORPS.

The undermentioned lieutenants resign their commissions (dated Jan. 19th, 1907):—Edward J. Porteous, James C. L. Hingston, and Harold Jacques. Captain J. C. Kennedy, from Colchester, is appointed to the London District for duty. Brevet Colonel D. Bruce is granted an extension of two years in his appointment to the Army Medical Advisory Board, as expert in tropical diseases. Lieutenant-Colonel J. R. Yourdi, Secunderabad, is appointed senior medical officer, Jersey, vice Lieutenant-Colonel F. B. Maclean.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS) LONDON COMPANIES.

Major-General Lord Cheylesmore, C.V.O., will distribute the prizes gained by the men of the above corps during the year 1906 at the headquarters, Calthorp-street, Gray's Inn-road, London, W.C., on Feb. 9th, at 8 P.M. The distribution will be followed by a dance.

THE HEALTH OF THE NAVY FOR 1905.

The statistical report of the health of the navy for 1905 may be regarded as very satisfactory. As compared with the averages of the last eight years there are decreases in the ratio of cases, invalidings, and deaths, and the case and death ratios for 1905 are the lowest recorded since 1856. The Mediterranean station shows the highest invaliding ratio and the East Indies the highest death-rate. The report is prefaced by an introductory statement in which it is explained that owing to the reorganisation of the Fleet there have been considerable changes in several of the stations, necessitating various alterations in this as compared with the reports of previous years. The nature of these changes is briefly indicated. Comparisons are instituted where possible with the averages for a series of years, but consequent upon these changes no comparisons with previous years are made in the present report in dealing with the Home, Channel, Atlantic, and North American stations. The statistical tables having reference to the incidence of diseases, invalidings, and deaths between certain ages have also been omitted in this report, as it is considered that the value of the conclusions to be gained from them is not of sufficient importance to warrant their continuance. For the first time a statistical table with remarks is included on the health of the boys' training establishments on shore; and tables enumerating the operations performed at the principal naval hospitals abroad are also inserted. These are very interesting but the official records naturally lose much of their interest by the delay in publication.

The total force in the year 1905 was 111,020,

and the total number of cases of disease and injury was 81,563, which is in the ratio of 734·71 per 1000, being a decrease of 119·29 per 1000 as compared with the average ratio of the last eight years. The total number of persons invalided was 2653, which is in the ratio of 23·89 per 1000, and shows a decrease of 4·98 in comparison with the average of the last eight years. The ratio of invaliding for disease alone was 22·02, and for injury 1·87 per 1000. Of those stations where comparisons can be made with the figures for 1904, the Mediterranean and irregular force show increased invaliding ratios; China, East Indies, Australia, and Cape of Good Hope show diminished ratios. Deaths number 433, a ratio of 3·9 per 1000, showing a decrease of 1·42 per 1000 as compared with the ratio for the last eight years. Of these deaths 305 were from disease and 128 from injuries. The death rate due to disease alone was 2·74, and that due to injuries was 1·15 per 1000. Compared with 1904, the stations showing an increased death-rate are the Mediterranean and the irregular force; the remainder of those for which comparisons are made show a decreased rate. The Channel Fleet shows the lowest sick-rate and the irregular force the highest. There are many interesting notes and figures to be found under the heading of General Diseases and in the brief reports of the various stations. The appendix contains Notes on the Distribution of Mediterranean Fever in the Fleet during 1905, &c., by Fleet-Surgeon P. W. Bassett-Smith, R.N.; a Report of Work Done in the Laboratory at the Royal Naval Hospital, Malta, during the Year 1905 by Surgeon H. C. Whiteside, R.N.; a Statistical Report of Mediterranean Fever Cases occurring amongst the Nursing Staff and Patients under Treatment in Hospital for Other Diseases; a paper on Physical Culture and its Pitfalls, with a Critical Analysis of Swedish Drill, by Staff Surgeon A. Gaskell, R.N.; and another on Some Cases of Appendicitis treated at Haulbowline 1904 to 1906, by Fleet-Surgeon J. L. Barrington, R.N., Royal Naval Hospital, Haulbowline.

NURSING IN THE NAVY.

We have not yet enlisted the services of trained female nurses on battleships, and indeed our naval nurses form a small and comparatively unimportant body. In the United States Surgeon-General Rixey has just issued a plea for trained women nurses in the service, pointing out that in all modern wars the services of women nurses have proved of great value. In time of peace such nurses would secure for the sick at naval hospitals a better medical and surgical nursing service, he believed, than was now obtained and would be of great use in teaching and training the men of the hospital corps. In time of war they would be needed, in addition, for hospital ships, and their presence in hospitals would release a large number of hospital corps men for duty on board men-of-war. The recommendations of Surgeon-General Rixey for the establishment of a corps of trained nurses in the navy of the United States has, according to the *Nursing Times*, met with the approval of the Navy Department.

RUSSIAN WAR STATISTICS.

The *Broad Arrow* publishes in its issue of Jan. 19th some medical statistics of the Russian army lately officially published and quite correctly describes them as "curious reading." The period covered by the statistics embraces the whole period of the war, except the siege of Port Arthur and the combats in the island of Sakhaline (Sagalien), dating from February, 1904, to Jan. 1st, 1905. The following extract gives a very good idea of the nature of the figures. The admissions to hospital and deaths of officers are thus tabulated. Russian army: officers, sick and treated in hospital, 13,143 or 102 per cent.; cured, 8780, or 68 per cent.; sent to rear, 3264, or 25 per cent.; died, 210, or 1·6 per cent.; invalided, *nil*; remaining under treatment in the Far East, 889, or 6·9 per cent.; died from accidents, 10, or 0·078 per cent.; by suicide, 33, or 0·25 per cent. The deaths from "accidents" are thus classed: Alcoholism, 2 per cent.; drowned, 2 per cent.; railway accidents, 1·9 per cent.; and firearms, 0·09 per cent. Among the suicides 9 per cent. of the officers and 8 per cent. of the men took their lives by means of firearms.

The prize of £50 annually given by Sir John Cragge, M.V.O., to the London School of Tropical Medicine, for the investigator who makes the most valuable contribution to tropical medicine during the year, has just been awarded to Fleet-Surgeon P. W. Bassett-Smith, R.N.

Correspondence.

"Audi alteram partem."

EPSOM COLLEGE.

To the Editors of THE LANCET.

SIRS,—In a leading article dealing with the Benevolent Agencies of the Profession which appeared in THE LANCET of Jan. 12th you kindly referred in appreciative terms to the work carried out by the Royal Medical Foundation attached to Epsom College. As stated in the article, some foundation scholars practically owe all they possess to the help rendered by the College. Probably few of your readers are aware of what is the actual cost of educating and maintaining a foundation scholar. In some institutions where the standard of education is far below that provided at Epsom, and where the pupils leave at an earlier age, a child can be purchased into the school for a sum of approximately £200; but at Epsom College each foundationer who remains for the full time allowed by the by-laws costs between £700 and £800. Moreover, sons of medical men who pay the usual fees receive a substantial benefit, for, under the by-laws of the College, such boys are educated "at a sum as near to prime cost as reasonably may be."

In return, old Epsomians might do much for their *alma mater* if they would carry in their memory the needs of the foundation; and it would be a matter of great gratification if a large percentage of them would thus give practical evidence of loyalty and attachment to their old school. A few foundationers have contributed generously and there are doubtless others who, if the thought to do so occurred to them, are able and would be desirous to do likewise.

I should like to quote *in extenso* a letter just received from Australasia, the tone of which is most gratifying:—

> DEAR SIR,—Herewith a draft for £8 10s. as a donation to the Benevolent Fund of your College. I sent you £5 last year. My intention is to send Fund £31 10s. in all, being a guinea a year for each year I was able to practise. I am a chronic invalid from diabetes and heart trouble, therefore should I die before I have sent the whole £31 10s. my wife or family will send the balance.
>
> Yours faithfully,

With this excellent example before them, those old Epsomians who have hitherto done nothing for the foundation of Epsom College may feel prompted to follow so admirable a lead. A donation of such a sum as would represent one guinea a year for each year the donor had been in practice would be a most welcome contribution to the funds, as well as a substantial expression of thanks for benefits received from the College. Coming now at a time when the funds of the foundation are severely depleted, owing to the extensive drainage and sanitary operations which cost £8000, such contributions would be doubly acceptable.

There are, of course, many old Epsomians who are not in a position to make any but small donations; and those who are unable to contribute themselves may yet be able to collect contributions. Under the by-laws of the College the same voting privileges are given for a collection of 20 guineas as for a donation of 10 guineas. As evidence of what can be done by medical men making appeals to others, I may mention that, in response to my letter in the medical press a few weeks ago, one medical man at once collected over £10, and an old Epsomian has lately obtained a grant of £500 from executors in whose hands a large sum of money had been left for disposal amongst charitable institutions.

I am, Sirs, yours faithfully,

HENRY MORRIS, Treasurer.

37, Soho-square, W., Jan. 16th, 1907.

THE PERSISTENCY OF THE INFECTION IN CERTAIN CASES OF SCARLET FEVER.

To the Editors of THE LANCET.

SIRS,—There was a very interesting short article in THE LANCET of Jan. 12th, p. 88, on the above subject. All medical men who have had much experience in the administration of fever hospitals must have frequently made the same observations as Dr. H. P. Berry of Grantham. The whole subject of "return" cases and persistency of infection

in scarlet fever is full of difficulties and the solution of the problem is at present shrouded in mystery. On the subject of "return" cases, which, of course, also has reference to the persistency of infection, in my last annual report I wrote as follows:—

> Even after the most careful inquiries it is very difficult to satisfy one's self in a large number of instances that the child lately from hospital is the cause of the second case becoming infected and I am of opinion that many cases styled "return cases" are not return cases, in spite of the apparently strong presumptive evidence sometimes forthcoming; and my experience inclines me more and more to the opinion that just as the Klebs-Loeffler bacillus (the cause of diphtheria) may be found in the throats of people in perfect health, so the infection of scarlet fever, whatever it may be, may remain latent and only become active when the lowering of the body health from various reasons favours such increased activity of the infective matter as to cause the development of scarlet fever.

In other words, I am of opinion that many so-called "return" cases have become infected *before removal to hospital of the first case*, and the infecting organisms, whatever they may be, have remained latent until from some cause or other they have overcome the resisting powers of the patient *coincidently with* the return of the other case from the hospital.

Let me give a very striking case bearing on this point. A child was sent into the Bootle Corporation Infectious Hospital notified as suffering from scarlet fever. She was admitted into the acute ward. On my examining her I discovered no signs of scarlet fever and I ordered her removal to the convalescent ward. The child remained in hospital for about five weeks, and after having remained perfectly well throughout her stay in the ward she was sent home. Within a week after her return home I received a notification that this same child was suffering from scarlet fever.

We have here an example of a child who had been in an acute scarlet fever ward for one day and a convalescent scarlet fever ward for over four weeks—that is to say, she had lived in an atmosphere impregnated with the infection of scarlet fever for five weeks and had remained quite well, probably because she had been kept clean and had been well fed and clothed; in other words, her resisting power had been kept up. When she returned home where her mode of life became less regular, where she was not so well fed—in other words, when her resisting power became lessened—the infection of scarlet fever, which must have been there all the time, developed. From the time of her discharge from the hospital until her return to the hospital she had not been out of doors nor had there been any visitors in the house, so that outside sources of infection might be excluded in this case. I have never met an instance which would support better than this the theory that the infection of scarlet fever may presumably remain latent as in diphtheria, and if the infection of the disease may remain latent in a healthy individual it may, of course, equally persist in an individual convalescent from the disease.

Again, which of us has not received into hospital a second case of scarlet fever from a house the day before or two days before the first case returned to that house from hospital? If circumstances had been reversed and Case No. 2 had been removed to hospital two days *after* instead of before the return home of the first case, Case No. 2 would definitely have been ascribed as being the result of infection from Case No. 1 in the absence of any other known cause of infection, even although Case No. 1 from outward appearances was as free from infection as a child could possibly be. Again, I think it is a common experience that it is precisely those cases which remain in hospital a long time which are the supposed causes of "return" cases. This may, of course, be that the clinical conditions which have necessitated the prolonged stay in hospital of any particular patient are precisely those which are the cause of infection in other children after they are discharged, though it may be that the result of the prolonged breathing of the infected atmosphere of a scarlet fever ward has been the accumulation in the nasal chambers or other places of the organisms causing the disease.

Whatever may be the explanation of "return" cases two facts are certain: (1) "return" cases more commonly result from the cases which have been treated for a long time in hospital than from those which have remained in hospital for shorter periods; and (2) the majority of "return" cases occur in the winter time when the weather is persistently unfavourable and the children are perforce kept in the wards continually breathing an infected almosphere, and thus cannot benefit from the disinfecting effects in the air passages of breathing the fresh air out of doors.

I am, Sirs, yours faithfully,

T. W. N. BARLOW.
Jan. 21st, 1907. Medical Officer of Health, Bootle.

TYPHUS FEVER IN TENERIFFE.

To the Editors of THE LANCET.

SIRS,—Will you kindly allow me to call attention in your columns to the above subject? It is officially admitted that typhus fever (or "plague," the authorities have not yet arrived at an exact diagnosis) exists in Teneriffe at the present time and I think it is right that the profession at home should know it. The epidemic is not an extensive one and, so far as I can ascertain, there have been only about a dozen cases, confined to Santa Cruz and its immediate neighbourhood. The careful traveller runs little or no risk of taking the disease, but the preposterous eccentricities perpetrated by the Spanish officials under the pretext of prophylaxis are enough to scare away any intending visitors and are calculated to afford them the maximum of trouble and inconvenience if they are bold enough to land.

Let me briefly relate the experiences of the party with whom I am travelling. We landed direct from England on Jan. 4th, 1907, and proceeded at once in carriages for Orotava. Each carriage bore a printed notice stating that it had been "disinfected" the same day, and the value of this disinfection may be estimated by the methods employed upon ourselves later. At Laguna we were turned out, led to an evil-smelling shed by the roadside, and a policeman pumped a spray of very dilute creolin solution over our boots and nether garments. No doctor was present. We smiled and passed on in fresh carriages, thinking the trouble was all over, but a very much more serious ordeal awaited us near Orotava. Here there was a large disinfecting station under the charge of two doctors, to whom I explained politely the circumstances of our journey and gave an assurance that we could not possibly have been in contact with any fever case or be conveying fomites in our luggage. But in vain. We were turned out again and this time literally drenched with fluid from a large garden syringe. The said fluid purported to be a solution of corrosive sublimate, but I received about half a drachm into my mouth and it tasted like nothing but dirty water, nor did it react at all on the metal fittings of our trunks. The gentlemen escaped fairly well, having hastily donned mackintoshes, but the ladies of the party were soaked to the skin in places and their dresses considerably damaged. Nor was this all; our wraps and trunks were sprayed and sponged copiously, with the result that the former were soaked through and the contents of the latter soiled and wetted, though the trunks themselves were not opened. All these proceedings were conducted with the exasperating deliberation and lack of method characteristic of the Latin races and finally, after the strenuous hygienists had disinfected an unfortunate pug dog which had strayed up from Orotava, we were allowed to depart amid the jeers of a crowd of loafers to whom our sufferings evidently afforded great satisfaction.

Such are Spanish methods of prophylaxis of infectious disease and one cannot but feel contempt for the authorities and medical officers who practise such ridiculous ineptitudes in the name of science. The folly of such proceedings must be obvious to anyone with the slightest knowledge of the disease and the manner in which it is disseminated. Of notification and the isolation of "contacts" I could hear nothing, and the only visible sign of disinfection was a sprinkling of chloride of lime round a house in which a fatal case had occurred at Laguna.

The important point is that this splendid health resort is being spoiled for invalids, on whom a soaking such as we got might have the most disastrous results. The excellent hotels at Orotava are not filling as they should and the companies which own them will suffer serious financial loss unless the authorities soon adopt saner and less objectionable methods. I would like to add that two years ago this ship was refused pratique except on the terms of a complete fumigation at Santa Cruz because we had three months before been in La Guayra—a supposed infected port—and in spite of the fact that we had since maintained a perfectly clean bill of health.

In conclusion I would repeat that visitors to Teneriffe

need not be unduly fearful of infection but must be prepared to face considerable loss and discomfort so long as the present sanitary reign of terror exists.

I am, Sirs, yours faithfully,

W. H. PEILE, M.D. Dub., D.P.H.

S.Y. *Evoe*, Santa Cruz, Teneriffe, Jan. 6th, 1907.

SANITATION IN EGYPT.

To the Editors of THE LANCET.

SIRS,—May I offer some comments on the important and interesting letter of your Cairo correspondent on "The Drainage of Cairo" in THE LANCET of Dec. 22nd last?

What strikes a visitor interested in these matters is that the drainage of Cairo is only one item in the great problem of Egyptian sanitation. Your correspondent appears to imply that while there is a terribly high infantile mortality in Cairo, the health conditions in the villages are relatively good. It is to be feared that this is not the case. By all accounts the infantile mortality is everywhere enormous; one authority has repeatedly put it at two of every three children born. Certainly the conditions of water-supply and sewage in the villages are shockingly bad. Everywhere the drinking-water is obviously polluted in every conceivable way. Even in the small modern town of Helouan, a Cairo "health resort" on the edge of the desert, I have seen a pestiferous open channel, fortuitously formed, slowly carrying and depositing filth in one of the side areas. The water-supply of Helouan appears to be from wells, and in the porous desert soil percolation seems inevitable.

As to Cairo, it is to be noted that while the Anglo-Indian expert is preparing his report a number of streets are being laid with asphalte. This is in itself a desirable reform, but as the asphalte would have to be broken up again in case of a system of drainage being set up it is to be presumed that the Government do not contemplate such a system but have in view an extension or reform of the present method of removal by sanitary carts. If that be so, the time has clearly come for the development of such a system in the other towns and villages likewise. Your readers may remember that during the South African war Sir Arthur Conan Doyle made it a part of the case against the Boers that in their towns they had no drains. The British people should make the effort to realise that that is the state of things not only throughout the British colonies in South Africa—where it is justifiable—but throughout all Egypt (barring Alexandria) under British control. And even the Alexandria sewage system is very defective. The report of the Public Health Department for 1905 expressly ascribes the persistence of plague in Alexandria partly to the dilapidated state of the drains. Concerning the cesspools of Cairo, it may be true that some of the latest are well built; but the official reason given in the past for discontinuing the system of drainage begun before the occupation was that digging operations in Cairo were so often fatal to the diggers by reason of the infiltration of sewage from the existing cesspools. There is, I understand, no regular inspection of cesspools, no enforced law for their being periodically emptied, no limitation as to their size, and no requirement as to their being cemented.

It is to be feared that the explanation given by your correspondent of the long delay in filling up the open ditch in Cairo called the Khalig—to the effect that the resistance came from Moslem fanaticism—is unduly favourable to the Government. The real reason seems to have been the official unwillingness to spend money on public health. What was finally done was to give the ditch as a concession to a tramway company on condition of their filling it up. They did so and laid a double tramway line on the narrow roadway they made, thus constituting the most dangerous thoroughfare in Cairo.

As to the present Cairo water-supply, on which your correspondent passes no judgment, I may mention that in the School of Police the drinking water is very carefully filtered, and the authorities are satisfied that this precaution has greatly raised their health standard. That is to say, the ordinary water is officially recognised to be bad. It is always discoloured at high Nile. Your readers can infer what are the chances for the rest of Cairo, with its population of nearly three-quarters of a million, and for the rest of Egypt, where the water-supply is still primeval, being generally taken from the Nile, or unprotected wells and canals, or stagnant pools.

Let me add that in Cairo there are only some five or six public latrines; that these are solely for men, and all in a small space in or near the Esbekieh Gardens; that they emit even in winter a great stench (one lately blew up from the gases generated beneath it); that natives can be seen in open day availing themselves (for *all* purposes) of the paths and walls in some of the principal tramway thoroughfares; that there are only some three or four drinking fountains, set up by pious Moslem donors; and that even in some modern streets may be seen pails or jars of unfiltered and sometimes dirty drinking water, charitably placed for the poor by Moslem householders. These jars commonly stand under the trees where filth accumulates. There are no public washhouses, nor public baths, apart from the impossible baths attached to the mosques—and this in a country where for six months of the year the climate is tropical. Yet another item. Flat tenements of five or even of six storeys are now being rushed up, though many complaints are made in the newspapers that the pressure is often hardly enough to take the water to the second floors. I say nothing as to inspection of milk-supply which, I fear, is much needed.

I am, Sirs, yours faithfully,

Cairo, Jan. 10th, 1907. JOHN M. ROBERTSON.

MILK IN SMALL GENERAL SHOPS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Jan. 19th, p. 193, I notice an article from a correspondent on "Milk in Small General Shops." As to the unsuitability of the majority of such premises for the sale of milk there can be no difference of opinion, but the statement that 70 per cent. of the milk-supply of London is retailed from such shops is, I think, erroneous and should therefore not be allowed to pass without comment. Surely the dairymen of London are responsible for more than 30 per cent. of its milk-supply.

I have recently been inquiring into the subject in this borough and enclose you the result of my investigations. It will be seen that while 57 dairies sell 2250 gallons of milk daily, an average of nearly 40 gallons per dairy, 69 small general shops such as described by your correspondent sell but 70 gallons daily, an average of practically only one gallon per shop. If the conditions prevailing here are similar to those in the East of London—and I think such may fairly be claimed to be the case—the percentage of milk sold by these shops, grossly polluted though such milk must be, is fortunately not nearly so large as is stated by your correspondent. With the rest of the paper I cordially agree and also fully endorse the opinion expressed as to the large amount of condensed milk that is given to children, especially in poor neighbourhoods, such condensed milk, moreover, as my inquiries show, being only too often the condensed skimmed variety.

I am, Sirs, yours faithfully,

G. SOWDEN,
Medical Officer of Health for the Borough of East Ham.

Jan. 21st, 1907.

GAS FIRES.

To the Editors of THE LANCET.

SIRS,—Will you allow me space for a short reply to the letter from Mr. J. H. Brearley which appeared in THE LANCET of Jan. 12th? In that letter the author takes the unusual course of quoting without my permission *portions* of a correspondence I had with him last year on the subject of gas fires; and while I wrote nothing to Mr. Brearley that need not be published I object to isolated sentences being chosen for reproduction and still more to what Mr. Brearley "gathers" from my letters. Thus, he gathers from what I wrote "that the gas fire was fitted into the same flue as the coal fire without any consideration as to the satisfactory carrying away of the products." Yes, it was fitted into the same flue as the coal fire. Is not that done in nine cases out of ten? Is it not the "ordinary way"? And that was therefore the case I wished to examine. Mr. Brearley goes on to say that I paid no consideration as to the satisfactory carrying away of the products. Now I stated in my pamphlet that the "stove worked perfectly well," and this, of course, includes the carrying away of the products of combustion. Mr. Brearley seems to forget that I undertook a serious investigation, that I devoted 15 months to the work, that I obtained concordant results,

and that I published both the detailed and average results. He seems to think that I started, not with the object of ascertaining the truth, but to justify some preconceived opinions and that for this purpose I used an unsuitable stove "probably badly fitted to the flue." What right has Mr. Brearley to say of a fixture he has not seen that it is probably bad, unless, indeed, he implies that all gas fires are badly fitted? In that case my results are still of value.

Mr. Brearley is surprised that I did not record the temperature of the room during the experiments. This did not come within the scope of my investigation, which was directed entirely to the effect produced on the composition of the air by various methods of heating and lighting. He also objects to the size of room I used, forgetting that gas fires are often used in small rooms and, still worse, gas-cooking stoves in still smaller scullories.

Finally, I object to Mr. Brearley's interpretation of my motives. It is true that he says he would be the last to "impute other than the highest motives" to me, but that is quite neutralised by such statements as the following: "I must say that if you had been endeavouring to get the percentage of carbonic acid in the atmosphere as high as possible you could not have adopted better conditions." Mr. Brearley forgets that I hold no brief either for gas or electric lighting companies, that I should have published the results in any circumstances, whether in favour of gas or coal fires, and I may tell him that as a consequence of the experiments I at once introduced the electric light in my own house. I am sorry to find that the editor of the *Electrical Engineer* by expressing his confidence in the accuracy of my work is sneered at by Mr. Brearley—his "wish is father to the thought."

When Tennyson found his poems adversely reviewed by Christopher North he replied somewhat as follows (I quote from memory):—

> You did once review my lays,
> You did mingle blame with praise,
> When I learned from whom it came
> I forgave you all the blame,
> I could not forgive the praise,
> Crusty Christopher.

So I feel with regard to Mr. Brearley, I cannot forgive his praise when he accompanies it with attacks on my good faith in carrying out the investigation on the air of rooms.

I am, Sirs, yours faithfully,

FRANCIS JONES, M.Sc., F.R.S.E., F.C.S.

Manchester, Jan. 19th, 1907.

SPECIFIC GRAVITY OF URINE.

To the Editors of THE LANCET.

SIRS,—Although many may be aware of the abstract fact that the specific gravity of all liquids varies with the temperature it may not be generally appreciated, as a concrete example, that the specific gravity of urine is very materially influenced by temperature. Probably in the great majority of cases specimens of urine are examined when it has become cooled—i.e., when it is at the temperature of the surrounding air, since these specimens generally reach one in bottles, which are allowed to stand some little time, but I have frequently had occasion to examine urine which has been freshly passed, notably in cases of examination for life insurance, when it is passed at the time of examination.

I have often been struck with the low specific gravity of such freshly passed urine in many cases of young and healthy lives and was disposed to attribute it to the influence of the ingestion of fluid previous to the examination. On one occasion, lately, a specimen showing a specific gravity of 1015, when freshly passed, was left standing over night, with the urinometer *in situ*. On looking at it next day, before emptying the test glass, I was surprised to find the specific gravity to be 1020, thus showing a rise of five points. My attention being thus directed to this discrepancy, I made a series of observations, noting the temperature and specific gravity of the urine when it was freshly passed, and, later, when it had cooled down to the temperature of my surgery. As a result I find that the specific gravity of urine varies inversely with the temperature and that it rises, on an average, one point for every fall of eight degrees of temperature. I find no allusion to this in any text-book of physiology or clinical medicine, and I consider the recognition of this fact is of importance, and it is a fact which can be easily verified, inasmuch as it should conduce to the prevention of fallacy in estimating the specific gravity of urine. Urine which at 60° shows a specific gravity of 1020, will at 96° show a specific gravity of only 1015.

I am, Sirs, yours faithfully,

ALEX. THEODORE BRAND, M.D., C.M. Aberd.

Driffield, East Yorks., Jan. 19th, 1907.

MEAT DIET AND THE TEETH.

To the Editors of THE LANCET.

SIRS,—In connexion with the correspondence which has appeared in your columns upon this subject over the signatures of Dr. J. Sim Wallace, Dr. D. Chalmers Watson, and Mr. J. H. Gibbs, I should like to state that in the specimens shown at the Pathological Society on Dec. 18th, 1906, a distinct difference was apparent between a tooth germ in the meat-fed and one in the bread-and-milk-fed animal. The section of the head of a meat-fed rat, thrown upon the screen in order to demonstrate the bone changes, showed a developing tooth which was not a normal one. The vascular papilla, the odontoblasts, and the ameloblasts were poorly and irregularly developed. The contrast between this germ and that of a normal rat was well displayed in Dr. Chalmers Watson's excellent preparations. This specimen may, of course, have been from one of the three animals referred to in Mr. Gibbs's letter in which the erupted teeth were of the honeycomb variety. Nevertheless, it would be of interest to know whether the enamel organs and dental papillæ were found to be normal in the other meat-fed rats.

At that meeting of the Pathological Society I suggested, as reported in THE LANCET of Dec. 29th, 1906, that Dr. Chalmers Watson was mistaken in ascribing many of the effects observed by him to a meat diet and that they were probably due to a deficiency of lime and other bases, as no bone or bone dust was given with the meat. The perusal of Dr. Chalmers Watson's letter in THE LANCET of Jan. 12th leads me to add that until this point is settled any deductions from the experiments as to the effects of meat-eating habits upon the physique of the present generation seem to me to be premature. Indeed, whether the results produced in rats are due to the want of lime and other bases or whether they are an expression of the failure of a naturally omnivorous animal to rapidly adapt itself to a purely flesh diet it is clear that they cannot be directly applied to the case of civilised man, who never in ordinary circumstances lives upon a diet of meat alone. A mixed diet may contain a very large proportion of meat and yet be not wanting either in carbohydrate or fat or in the necessary inorganic elements present in vegetables, fruits, milk, and in the drinking water of many districts.

I am, Sirs, yours faithfully,

London, W., Jan. 21st, 1907. EDMUND I. SPRIGGS.

To the Editors of THE LANCET.

SIRS,—In his letter of Jan. 19th Dr. W. G. Creswell asks whether the artificial feeding of infants prejudicially affects the teeth. For several years, during which I have examined about 5000 hospital dental patients annually, I have directed special attention to this subject and have satisfied myself that the artificial feeding of children as generally carried out does exert a harmful effect on the development of the teeth, a view which is in accord with that generally held by dental surgeons. This harmful effect is shown in structural defects of the tissues and in irregularity of the teeth, conditions which favour the lodgment of food and subsequent caries.—I am, Sirs, yours faithfully,

Edinburgh, Jan. 21st, 1907. J. H. GIBBS.

To the Editors of THE LANCET.

SIRS,—In his letter to THE LANCET of Jan. 19th Dr. W. G. Creswell asks two important questions which have not been answered by all authorities in the same way. Nevertheless the evidence is sufficiently strong, I think, to justify us in saying that the artificial feeding of infants *per se* does not prejudicially affect the development or structure of the teeth. The teeth of children, whether breast fed or otherwise, are almost invariably perfectly good to all external appearances when they cut the gums. Only about 6 per cent. have somewhat defective enamel; but this defective formation of the temporary teeth cannot be attributed to artificial feeding, as

the enamel is largely formed before artificial feeding is commenced. Mr. C. S. Tomes in his "Dental Anatomy" writes, "the first temporary molars are complete as to their masticating surfaces" at birth. As these are perhaps the teeth of the temporary set which succumb first and most rapidly to dental caries, it is impossible to attribute this to defective development or to any predisposition to decay in the tooth itself as a result of artificial feeding. Now this is important, as about 99 per cent. of children at the age of five or six years have dental caries in several teeth, of which the first temporary molar is almost invariably one. Again, children who are fed physiologically after the artificial feeding of the first year invariably, so far as my observations go, have teeth free from dental caries. I have come across a few examples of this, although as physiological feeding, having regard to the consistency of the food and the arrangement of the meal, is so generally unknown such examples are rarely to be found. With regard to the permanent teeth which *may* be affected by artificial feeding, it would appear that the evidence is but slight in support of the supposition that it has an injurious effect on the development or structure of the teeth. It would appear rather that some severe constitutional disturbance, the result of mal-environment, is generally responsible for the defective structure when it exists, though occasionally grossly improper feeding and consequent ill health may be presumed to have a like effect. Mr. Sidney Spokes has made a valuable contribution to this subject. He finds that in one of our public schools 4·6 per cent. of the boys had hypoplasia—i.e., defective development of the enamel in the permanent teeth—while in the Poor law schools the percentages were 7·1 for the boys and 7·5 for the girls. The statistics are not mentioned as to the relative number of breast-fed children in either group, but notwithstanding their greater freedom from hypoplasia it may be presumed that the boys of the public school were less frequently breast fed than the boys and girls of the Poor-law schools. Corroborative evidence of like nature is, I think, to be found in the investigation undertaken by Mr. J. H. Gibbs and Mr. G. W. Watson, recently recorded by Dr. Chalmers Watson in THE LANCET. With regard to Dr. Creswell's second question, it is no doubt the case that the teeth of bottle-fed children do decay more early and rapidly than those of breast-fed children, not, as a rule, because the teeth are in the least defective, but because such children are usually kept longer and more exclusively on the bottle than breast-fed children are kept at the breast. Moreover, having acquired in all probability a delicate digestion the result of artificial feeding, they are kept more strictly on a diet in which a more or less starchy artificial food is substituted for, or added to, cows' milk, in order to prevent curding and the dyspeptic troubles which might follow. Such bottle-fed children are also likely at a later age to be kept more strictly to a diet in which the bread or rusks, &c., are carefully "well soaked" in the milk for like reason. To this may be added the fact that an artificially fed baby occasionally develops rickets after it is a year or two old, and then, instead of being given a little fish or chicken, or vegetable, or fresh fruit to supplement its daily dietary, the rickety child probably has more frequently its milk soaked diet supplemented by raw meat *juice* and perhaps fruit *juice*. Lastly, there is no doubt that on the average the breast-fed child thrives best, the teeth are put to better use and are not bathed in vitiated secretions. The jaws grow normally, the teeth become less crowded, and altogether they have a better chance of being subjected to those natural processes which normally prevent dental caries.

I am, Sirs, yours faithfully

Wimpole-street, W., Jan. 19th, 1907. J. SIM WALLACE.

SPIROGRAPHS OR NASAL "BREATH PICTURES."

To the Editors of THE LANCET.

SIRS,—The practice of testing nasal patency by breathing upon a prepared surface is by no means new, but its usefulness has been somewhat restricted by the want of a satisfactory material. Slate, glass, and polished metals all have their shortcomings, but I have now found that vulcanite with a medium polish gives a very reliable and faithful image. By placing the plate horizontally on the upper lip half an inch from the nostrils and giving one short and steady expiration a well-defined steam impression results, which on evaporating affords reliable and striking evidence of the actual and relative patency of the nostrils. The image may be temporarily fixed or rendered more conspicuous for demonstration purposes by lightly powdering it with calcined magnesia or fine starch. Small sheets of vulcanite with a suitable surface and of a convenient size are supplied by the Medical Supply Association, 228, Gray's Inn-road, London, W.C.

I am, Sirs, yours faithfully,

WYATT WINGRAVE, M.D. Durh.

Central London Throat and Ear Hospital, Jan. 19th, 1907.

THE PAST AND PRESENT INCIDENCE OF INFECTIOUS DISEASE.

To the Editors of THE LANCET.

SIRS,—I agree with Dr. H. E. J. Biss in saying we can never expect to see the full benefit resulting from notification and isolation till the whole country has gone through a systematic sanitary inspection. The correction of existing sanitary defects would mean the breaking up of the germ-breeding grounds, and we should thus be dealing with the prime cause of infectious disease. A supply of pure air, pure water, and pure food in any district cannot do otherwise than bring about a general increase of vitality, or, in other words, increased powers of resistance.

I am, Sirs, yours faithfully,

Bexhill-on-Sea, Jan. 21st, 1907. F. P. ATKINSON.

MILK IN SMALL GENERAL SHOPS.

(FROM A CORRESPONDENT.)

II.[1]

IN my previous article dealing with the manner in which milk is retailed in small general provision shops, I described somewhat briefly a few shops of this kind into which I entered to observe the conditions. As pointed out, in none of these were the conditions favourable for keeping milk in a fit state to serve as a food for young children, and in some of the shops the surroundings were so insanitary as in certain circumstances to render the milk absolutely dangerous as a food for infants. It is not only in the East-End of London that small general provision shops in which milk is retailed are prevalent. They abound in every part of London in which the poor are massed, and undoubtedly are the means of supplying this class with the greater portion of the raw milk which they and their families consume. In the course of my limited tour of inspection I visited several localities in and about London, populated chiefly by the working classes, and found, as in the East-End, that public-houses and small general provision shops were everywhere conspicuous. A description of such a shop in Holborn or in St. Pancras, or even in a suburban district, is in most essential details similar to that of one in the East-End. They differ only in degree. Almost all are small, many by no means clean, and packed with a miscellaneous store of eatables and of articles for domestic use. In perhaps the majority of these establishments the milk is kept either uncovered or partially uncovered, the dipper is exposed to contamination by outside agencies, the door of the shop is frequently kept open in hot weather, always thrown back, permitting the dust and dirt from the street to blow in freely; in short, most precautions calculated to protect the milk from pollution are neglected. Again, the mode in which the milk when bought is conveyed from the shop to the home is, as a rule, characterised by great carelessness. In many instances a child is sent with a jug or other open receptacle in itself often unclean and to which dust and dirt of every description have ready access. Into the question of the extent to which milk is open to contamination in the homes of the poor there is no need to enter here, although undoubtedly this source of pollution is a potent factor in the causation of infantile mortality and one which must be grappled with ere the successful, or partially successful, solution of the problem of how to insure a comparatively pure milk-supply to the young children of the poor is in sight.

[1] The first article was published in THE LANCET of Jan. 19th, 1907, p. 193.

So far, however, as the milk-supply of the London poor is concerned, regarded solely from the point of view of the small general provision shops' supply, my observations, cursory though they were, have taught me these facts, which, of course, have been made the subject of comment before: That the working classes obtain the greater part of, if not almost all of, the raw milk which they and their families consume at small general provision shops; that in most of these shops the sanitary conditions are unfavourable, milk being kept in such a state as to render it an injurious food for infants; and that in a large number of cases precautions to preserve the milk from pollution are neglected both by the small shopkeepers and the customers. The menace to infant life involved by impure milk is too well known to require emphasis. During the year 1904 about 19,000 infants under one year of age died in London. Of this number no less than 2347 died from epidemic diarrhœa, the largest number who died from any one cause. It is needless to state that the occurrence of epidemic diarrhœa amongst infants is attributed to improper nourishment, chiefly to impure milk. Vaughan goes so far as to assert that nearly all cases of summer diarrhœa among infants are due to the presence of putrefactive or other bacteria of decomposition in the milk. I am only recapitulating the fact that milk which has undergone certain fermentative changes, or which has been polluted by dirt of any description or by flies, is especially dangerous as a food for infants, a matter now of almost general knowledge, in order to press home the point that the manner in which the milk-supply of London is controlled is susceptible of much improvement and that the milk provided for the infants of the poorer classes should be of the best possible quality.

The small general provision shops of London play a very important part in the scheme of providing its poor inhabitants with milk, and therefore if these establishments are to be allowed to continue to supply milk they should at least be managed in such a way that all unnecessary contamination may be avoided. When making my observations I entered a few of the regular milk shops both in the East-End of London and in other metropolitan districts inhabited by poor people. I found that in these shops adequate precautions to preserve the milk from contamination were well observed. Why then do not the poor avail themselves of the opportunities thus afforded to obtain milk which is guarded from the pollution to which it is subjected in the small shops? The reasons probably are that the small shops are more convenient for them, that they can buy the milk they require when they buy their other provisions, and, lastly, that they can obtain credit at the shops at which they are accustomed to deal. Ignorance, too, in regard to the dangers of contaminated milk, on the part of the London mother of the lower class, is a weighty feature of the situation and one which has a great bearing on the sickness and mortality of infants.

The London County Council makes regulations dealing with the cleanliness of milk stores, milk shops, and milk vessels and the precautions against infection to be taken by the purveyors of milk and by persons selling milk by retail. These regulations are enforced by the metropolitan borough councils which are also required to register all persons carrying on the trades of cowkeepers, dairymen, or purveyors of milk. In Shoreditch, at the end of 1904 there were on the register 294 shops the proprietors of which were licensed to sell milk. During 1904 3199 inspections were made. In Holborn during the same period there were 171 such shops, and 1160 inspections were made. In Shoreditch the inspections seem to have been numerous, but I can only state that the small provision shops selling milk which I visited in that district certainly did not observe precautions necessary to preserve the milk from pollution, nor, indeed, in any locality to which I went did I find these shops in such a condition as to conform in any respect to one's ideas of what a milk shop should be. I may have been unfortunate in the selection of shops but I am of the opinion that a deplorable laxness is the rule rather than the exception in the management of small general provision shops in London in which milk is sold. The sale of milk in provision shops is but one phase of the milk question. It is, nevertheless, an important phase and is well worth investigation and discussion. The desideratum in regard to milk is that the poor should be able to procure it at the same time good and cheap. It is argued, and doubtless with truth, that if all the precautions needful to insure a pure milk-supply were enforced the cost of the product would be greatly increased. If, for example, as in New York and in some other American cities, certified milk were supplied on request the various methods through which such milk has to go in order to reach the high standard required would render it necessary to increase the price. Obviously a milk of this description would be unattainable by the poor even if they were educated up to the point of appreciating its value. In the meantime it would be a decided step in the right direction if the proprietors of small provision shops who retail milk were compelled to observe certain well-defined precautions, such as keeping all the milk vessels scrupulously clean and having the milk in a vessel which should be always covered and provided with an exit tap so as to prevent dirt and flies to some extent from contaminating the milk.

THE PARIS ABATTOIR AT LA VILLETTE.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(Concluded from p. 126.)

THERE are at La Villette 11 pavilions such as have been described and illustrated where sheep and horned cattle are slaughtered. Other pavilions very similar in structure and united by a central glass-roofed court are used as cattle-pens where the animals which have been brought from the neighbouring cattle market wait till it is their turn to be slaughtered. These pavilions, however, are so utterly unsuited for the purpose, so deficient in light and ventilation, that the same thing happens there as occurs in regard to the slaughtering. The cattle, especially during the hot summer weather, are kept in the glass-roofed yards instead of in the pavilions on each side of the yards. (See Fig. 1.) Here they have plenty of light and air, but there are no mangers, no water troughs—in fact, no stable appurtenances. Also it is much easier for the veterinary surgeons to examine them in the yards than in the neighbouring dark stables. Thus, just as the butchers like to work in the open court instead of in their small private compartments, so also are the cattle kept in the courts between the masonry pavilions rather than in the pavilions themselves. This is a very practical demonstration of the unsuitability of the latter. I did, however, penetrate some of these buildings and found them very dark and repugnant. In one of them there were a number of sheep separated by wooden partitions well calculated to retain dirt and disease germs. Also, and apart from these pavilions, I saw some small brick structures used for keeping sheep. In these latter there were numerous rafters and only very small windows which supplied but little air or light.

Further on there are extensive wooden stables for sheep which, though built 12 years ago, were called provisional. Here the central passage is so narrow that the manure has to be thrown out of the windows. A cart or even a hand barrow could not be introduced inside the building. But it is especially deplorable that no idea seems to exist as to what ought to be done. Thus the principle that wood, being porous, is an unsuitable material to employ has not dawned upon the workers and butchers of La Villette. On the contrary, if there is a need of some sort of railing or partition, an attendant is almost sure to explain how with a few planks or a pole this can be provided. Therefore the sheep and other animals are only separated from each other by wooden framework which becomes black and greasy and caked with dirt, thus supplying a culture-medium for microbes. This may help to account for the frequent cases of foot-and-mouth disease which occur at La Villette. The large wooden stables were built at a time when a great quantity of German sheep were imported into Paris. They cost, it appears, no less than £16,000.

This wooden structure is not of much use to-day, as there are no longer many sheep imported from Germany. It is situated close to the Ourcq canal and a rising bridge enabled the sheep to go from the cattle market into the slaughter-house without leaving the railway trucks that had brought them from Germany. All this is very badly organised, there are no proper platforms for the landing of the sheep, and it is no use sending animals, already purchased for killing, to the cattle market where they come in contact with, and may infect, other cattle. Worse, if anything, than the improper structure of many of the buildings is the fact that the water-supply at La Villette is insufficient. The water main is only 30 centimetres in diameter and there are moments when this does not suffice, so that the taps

FIG. 1.

Roofed court uniting two pavilions intended for cattle pens.

FIG. 2.

Scene at the Vaugirard Abattoir; the soot-black walls should be noted.

occasionally run dry. To lessen the frequency of such a contingency a small reservoir has been constructed and is placed on the top of a turret-like building. It is inside this building in immediate proximity to the water that the repugnant skinning of fœtal lambs and calves takes place. One forgotten fœtus was lying rotting outside the door at the moment of my visit. Inside I found a delicate-looking, fair young girl, perhaps 16 or 17 years old, wearing wooden clogs, dressed almost like a boy, and busy tearing the skins off a number of lambs that had been killed *in utero* by the slaughter of their mothers or that were stillborn. It seems to me that young women should not be employed on such work. This horrible proximity of girlhood with pre-natal death and destruction is most revolting. And just above was the reservoir of water which also should be kept pure.

It may be old-fashioned and unprogressive on my part, but I must confess that I was shocked at the work which women, and some quite young women, were allowed to do. One of the most repugnant sights, both on the south as well as the north side of the Seine, is the pig-bleeding room. At the Vaugirard slaughter-house, as well as at La Villette, women are employed to kill and to bleed the pigs. These animals are not thrown into boiling water, so that the bristles may be loosened by the scalding and then scraped off. As soon as they are killed and have bled sufficiently straw is piled around them and ignited. Thus the bristles are burnt off. This singeing process is often employed for bacon and not for pork. But it occasions a great deal of smoke and consequently the inside of the building where the pigs are killed is as black as a chimney, being covered throughout with a thick layer of soot. (See Fig. 2). This imparts a still more forbidding appearance to the whole place. The smell of burnt hair and flesh, the women collecting buckets full of blood, their blood-bespattered clothes, their hands soaked and reeking with blood, the ear-piercing shrieks of the pigs, the steam from the hot blood, the sinister clatter of wooden clogs on the hard cemented floor, the callous if inevitable indifference to this daily massacre, all goes to make up a picture which is the very opposite of that which man is wont to associate with a reverent appreciation of the virtues of woman.

In the preparation of tripe, sheep and pigs' feet, &c., a large number of women are employed. At La Villette this is organised by private enterprise—that is to say, a syndicate of dealers in these by-products. They merely hire from the town of Paris and within the precincts of the abattoir buildings occupying 1200 square metres of land. In this restricted space they treat the edible by-products, tripe, calves' heads, &c., of some 2,000,000 animals per annum. This would not be possible but for the employment of very ingenious labour- and space-saving machinery. Nevertheless, there is much overcrowding which should not be allowed. Also a much stricter sanitary supervision is necessary. In the centre of a little hut where calves' and bullocks' feet were being prepared for culinary purposes there was an untrapped drain that gave forth a vile odour. This was a dark coachhouse-like structure in which nothing intended for human food should be permitted to enter. In another place I found that calves' heads were thrown on the floor; the dirt and grease aiding, they glided along and this was easier than carrying them from place to place. The skinning and then the packing of sheep's feet in bundles, like bundles of wood, were done in part by machinery and in part by the hand labour of women, who sat closely huddled together endeavouring to keep pace with the machinery. There was no systematic ventilation. The places were badly paved and in many instances the foul water could percolate into the subsoil. Above any amount of rafters preserved the dust and dirt of ages, occasionally allowing small particles thereof to fall on the food that accumulates below. Here was another excellent illustration of the fact so dramatically demonstrated at Chicago that, unless controlled by law, private enterprise makes no difference between what is to be eaten and other articles of industrial production. It is always a question of the economy of time, of space, and of labour—in other words, of the cheapness of production, without a single thought as to the safeguarding of the health of the workers and of the consumers.

Fortunately it is now fully recognised that the abattoir at La Villette no longer corresponds with modern requirements. Its days are numbered. Paris cannot afford to remain much longer behind Germany and Switzerland in regard to the sanitation of its meat-supply. The fact, for instance, that men have to carry heavy portions of meat or carcasses on their backs is worthy only of the Middle Ages. At La Villette there is but one really modern department. That is a large hall where the carcasses of the hogs are suspended and kept till the butchers fetch them away. Here there are the "omnibus" overhead rails so that the suspended carcasses are affixed to small wheels fitting to these rails and can be easily pushed along. Of course, these overhead rails are more needed for heavy horned cattle than for pigs, and should start from the slaughtering place. A carcass should be lifted up by pulleys and never carried. At La Villette, however, with the exception of the hogs, all are borne on the backs of the butchers, who, in such a dirty place, cannot possibly keep themselves clean. In the absence of mechanical appliances five men are employed to kill a bullock where in a slaughter-house with modern fittings three would suffice.

There should be no insurmountable financial difficulty in building new and model slaughter-houses for Paris. The abattoir of La Villette cost £1,200,000, which sum was repaid by yearly instalments, and the debt was liquidated long ago—namely, in the year 1887. At a congress of butchers held in Paris in 1894, the average cost and profit for the previous 13 years were given. Though these were somewhat ancient figures, I was led to infer that there had been no very material change since. If anything the profit must have increased, for there has been an increase in the number of animals slaughtered. The receipts were estimated as follows: 160,228,384 kilogrammes of meat at 2 per cent. on its sale price. This yielded an average annual income of 3,204,567 francs (£128,182). The rent paid by the dealers in tripe and other by products, and for the storage of meat, together with various small receipts, brought the total income up to 3,418,514 francs (£136,740). The working expenses were set down at an average of 699,283 francs, or £27,971, so that there remained a net annual profit of 2,719,232 francs, or £108,769. This is a sufficient income to guarantee a loan for building another and a better abattoir.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

THE spring term, which commenced last week, has started very favourably and the number of students at work is greater than in any previous term. By far the majority are studying applied sciences, but the numbers in the medical, arts, and commerce faculties are very satisfactory. In the medical faculty the work in the spring term is particularly heavy and no special lectures are to be delivered, but in the other faculties much additional work is to be done. The Social Study lectures have already recommenced and are to include Coöperation, Local Administration, and Public Health and Housing, which will be dealt with respectively by Professor Ashley, Professor Masterman, and Dr. J. Robertson. On the 22nd of the month Professor Churton Collins recommenced his interpretative recitals, taking Shelley as his first subject. During the course of the term Mr. L. Doncaster will deliver a course of lectures on the Principles of Heredity and Variation in Animals and Plants, and on Wednesday evenings Mr. W. E. Collinge will lecture on Animal Pests of the Garden. There is therefore a very extensive series of lectures provided, which are open to all students of the University, either free or at a very small fee, and thus an excellent opportunity is afforded for them to step outside their own particular department and effectually to broaden their general outlook. In the Faculty of Commerce, which is pushing its way forward with no uncertain steps under Professor Ashley's able and energetic control, a new departure has been taken by the establishment of an advisory board of business men to coöperate with the professors in the Faculty. The step is a tentative one and is made with the object of gathering suggestions with regard to the training of students for business purposes from those who have practical experience of business demands, whilst at the same time it is hoped that the board will be able to bring the Faculty and its graduates to the notice of the business world.

The Housing Problem.

After a long discussion the city council decided to adopt the scheme of the housing committee for the disposal of the Bordesley Green site, to which attention was drawn in THE LANCET of Jan. 19th, p. 200. When

the land was originally acquired it was intended to erect upon it houses for working men at a rental of 5s. per week or less. In the event, however, it proved impossible to devise a scheme whereby such houses could be built and maintained except at the expense of the rates, and the council wisely refused to have anything to do with the creation of municipal buildings, having in view the want of success which had attended similar ventures in other places. Moreover, it is questionable if at the present time houses of the class originally proposed would really be useful if erected on the Bordesley Green site. By deciding to hand over the land to the Ivy Benefit Society under certain terms the council has sanctioned the attempt to develop on a site of about 28 acres a garden city within the city boundaries. It is true that the houses to be erected will somewhat exceed 5s. a week in rental, but it is also obvious that the rents cannot be high, for 50 per cent. of the members of the society which is to develop the site earn wages of 30s a week or less. If the calculations have been well made the experiment will eventually be a profitable one for the city and possibly may do something to aid in the diminution of the already too heavy rates. From the public health point of view the experiment is of the utmost importance and if it is successful it may prove to be the beginning of a satisfactory solution of numerous housing difficulties which now beset the guardians of great cities.

A New Children's Hospital.

A committee has been formed to draw up a scheme for the building and endowment of a new children's hospital for Birmingham.

A New Poor-house Infirmary for Aston.

The overcrowding of the workhouse at Aston and the refusal of the Local Government Board to allow additions to be made to it have necessitated the utilisation of the present infirmary for the accommodation of the ordinary inmates and consequently the provision of a new infirmary. It is proposed to acquire some additional land adjoining the workhouse grounds and to erect upon it a new infirmary capable of receiving 900 patients. On the whole, the scheme seems the most economical one which could be adopted, for as the new infirmary will be in the immediate neighbourhood of the workhouse the present nurses' home will be still available and the management during the transition period will be rendered comparatively easy. Before it can be carried out, however, the Local Government Board must be consulted and an application is to be made for its consent to the scheme and the necessary expenditure.

Wolverhampton Water-Supply.

The available supply of water at Wolverhampton is at present about 4,000,000 gallons per day and the governing officials think it necessary to increase the supply in view of increasing necessities. It is proposed to sink a series of boreholes to a depth of 1000 feet in an area which has been explored, and to meet the expenses already incurred and those which erection of the required buildings, pumping stations, and reservoirs will entail it will be necessary to borrow £90,000. It is estimated that for this sum the water-supply will be increased by a million and a half gallons a day.

Jan. 22nd.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The City and the University of Liverpool.

THE accounts of the University for the year ending Sept. 30th, 1906, were passed at the annual meeting of the court of governors, and in themselves afford strong proof of the growth and strength of the University. From the balance-sheet it appeared that the total assets of the University were something over £735,000, represented very largely by the value of sites and buildings and investment of endowed chairs and laboratories. The receipts for the year were over £61,000, made up chiefly of grants from Government and public bodies, amounting altogether to £26,000, interest on investments £9500, and fees from students £15,500. On the expenditure side of the account the chief items were for salaries of professors, lecturers, and teachers £21,000, and general expenses (including salaries of office staff) £12,400, in each case ignoring odd figures. The balance of income over expenditure was very small, but it should be pointed out that for the first time this year a substantial sum has been set apart for repairs and renewals of buildings, a very wise step which should lead to the gradual collection of an adequate reserve fund for those necessary expenses which will increase in the future as the buildings grow older. On the whole, the accounts may be considered extremely satisfactory and afford evidence of careful and business-like administration.

The Hospital Sunday Fund Collection.

Collections in aid of the medical charities of Liverpool were taken on Jan. 13th in the various places of worship throughout the city and suburbs. The largest sum collected was £590 at the Ullet-road Unitarian church. Sefton Park Presbyterian church came next with £559. The treasurer of the fund has just published the first list of collections, and it will be satisfactory to note that there is an increase of £627 over that of last year.

Liverpool Health Committee: Sterilised Milk and the Infantile Death rate.

For the past week the birth-rate was 41·2 per 1000 of the estimated population of 746,144 and the death-rate 22·7 per 1000, as compared with 21 per 1000 a year ago. The infectious cases in hospital comprised: small-pox, three; scarlet fever, 418; typhus fever, ten; typhoid fever, 36; measles, 24; diphtheria, 48; in isolation, 67; total, 606. Reference was made to the splendid results which had followed the use of sterilised milk in the city. It was stated that the death-rate of infants supplied with the milk by the corporation was something like 84 per 1000, whereas the rate of mortality amongst infants fed with ordinary milk was 158 per 1000.

The Duchess of Albany and the Liverpool School of Tropical Medicine.

Her Royal Highness the Duchess of Albany paid a private visit to the School of Tropical Medicine prior to the opening of the Children's Infirmary last week. She was accompanied by the Earl of Derby and her suite and was received at the University buildings by Vice-Chancellor Dale and other gentlemen. Upwards of an hour was spent in the laboratories of the school. Professor Ronald Ross acted as guide and expositor to Her Royal Highness, and Dr. A. Breinl and Dr. J. L. Todd assisted in exhibiting under the microscope the varied specimens of minutiæ which germinate and distribute the diseases of the tropics. The cancer research and experimental sections were also visited. This was the fourth occasion in which the School of Tropical Medicine has entertained royalty during the six years of its existence, other Royal personages who have honoured it by their presence being the Princess of Wales, Princess Christian, and Princess Victoria. Her Royal Highness's autograph was secured for the album of the Guild of University Undergraduates.

The Liverpool Royal Infirmary.

At a special meeting of the election committee held on Jan. 15th Dr. John Hay, honorary physician to the Stanley and Consumption Hospitals, was appointed assistant physician in the room of Dr. E. E. Glynn, who resigned that appointment upon his election to the post of deputy professor of pathology at the University of Liverpool, created by the illness of Professor Sir Rubert Boyce. Dr. Hay formerly held the office of medical tutor at the Royal Infirmary.

The Founder of the Children's Infirmary.

It has been suggested that the memory of the founder of the Children's Infirmary (the late Dr. Alfred Stephens) should be perpetuated by placing an inscription or other suitable memorial in the new building.

Jan. 22nd.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

Statistics of the General Infirmary.

A TABULAR statement of the work done during the year ending Dec. 31st, 1906, shows an increase in most of the departments of the institution. The number of patients treated in the wards amounted to 7052, an increase of 287 as compared with the year 1905. The average number of in-patients was 365 and the fact that this number exceeds that for 1905 by only four is some indication of the fact that the pressure on the beds is considerable and that the infirmary is being worked

well up to its possible limits. The number of new patients admitted was 6760. Of these 1297 were medical, 3286 were surgical, exclusive of 804 accident cases, 722 and 301 were respectively eye cases and ear cases, and 350 were admitted into the gynæcological wards. The number of deaths was 489 and of these 148 occurred within 48 hours after admission. Calculating the death-rate on the remaining 341 it is found to be 4·8 per cent., a decrease of 0·21 per cent. In the out-patient department the number of new cases was 39,666. Of these 11,160 were medical, 4925 were surgical, 482 were gynæcological, 5102 were ophthalmic, and 2074 were aural. Casualties amounted to the large number of 11,254, an increase of 796 as compared with the previous year. Dental cases reached a total of 3558, skin cases and throat cases were respectively 147 and 873, while to the out-patient Finsen-lamp department and to the x-ray department there were admitted 27 and 63 new cases respectively. To the Ida and Robert Arthington Hospitals there were sent from the wards of the parent institution no less than 1247 cases, 341 in excess of the former year, and to other convalescent homes 249 patients were drafted. There is no doubt that the two special semi-convalescent homes above referred to, which are under the management of the infirmary board, are filling a very useful part in the work of the institution, providing accommodation as they do for patients who are not fit for being sent home or to the ordinary convalescent homes and who require skilled dressing or treatment. These two hospitals are under the care of the junior member of the honorary staff who, in so far as his infirmary duties are concerned, devotes all his time to the work. The quantity of stimulants—wine and spirits—consumed in the wards amounts this year to 109 gallons as compared with 85 gallons for 1905. The smaller figure works out to about one-tenth of an ounce per patient per day, so that the infirmary may fairly be regarded as an abstemious institution.

Jan. 22nd

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Scottish Students' Conference in Edinburgh.

THE annual conference between student representatives of the four Scottish universities was held in Edinburgh on Jan. 14th and 15th. Each university was represented by four members. On the second day of the conference various medical topics were discussed and voted upon. A motion to the effect that a lectureship on the History of Medicine should be instituted received an equal number of votes. The conference was also equally divided on a motion to the effect that class examinations should be taken in consideration in determining the results of degree examinations. The question of autonomy for the Scottish universities was also discussed but not voted upon; the opinion was expressed that if the universities obtained autonomy the student representative councils should be represented on the governing bodies. Principal Sir William Turner addressed the representatives on the training for public life. He pointed out that student life was a preparation for active life in the future; it was more than a mere living for the present. As educated men it was expected that they would hereafter take a part in the public life of the district of the country in which they lived and also in the public life of the State. Men of education, if they wanted to retain their proper position amongst their neighbours, must take an interest in public affairs. The interest consisted in being able to discuss the various questions affecting the life of the locality or of the State which might arise from time to time and of taking a broad view of them, not a mere narrow local view. He thought that such conferences gave a preparatory training for taking part in the discussion of public affairs.

Annual Report of the Chalmers' Hospital, Edinburgh.

During the year with which this report deals it is stated that the number of patients treated was 613, of whom 395 were in the public or free wards and 218 in the private or paying wards. The surgical cases numbered 348 and the medical 265. The daily average number of patients was 38 and 322 operations were performed. There was also a considerable number of out-patients treated. The ordinary expenditure amounted to £3435.

Death of Dr. Alexander Peddie.

On Jan. 19th Dr. Alexander Peddie died in Edinburgh at the age of 97 years. He graduated in 1835, was the oldest practitioner in Scotland, and was widely known as the friend of Dr. John Brown.[1]

Bacteriological Diagnosis in Glasgow.

The health committee of Glasgow Corporation has issued a report on this subject which shows that during the year 1906 there were submitted for bacteriological diagnosis at the public health laboratory 1357 swabs from the throats of diphtheria patients, 663 tubes of blood from enteric fever patients, and the sputum of 1212 patients thought to be possibly suffering from pulmonary tuberculosis. According to the Glasgow Directory, there were 414 medical men in general practice within the city and 79·7 per cent. of these availed themselves of the laboratory for bacteriological diagnosis in these diseases. The total number of specimens submitted for examination during 1906 shows an increase of 457 over the previous year. The increase has been contributed from suspected cases of diphtheria and tuberculosis. During the past three years there has been a steady fall in the number of specimens from suspected cases of enteric fever and this is associated with a progressive diminution in the notification of this disease. Since the establishment of the laboratory it has frequently been found in connexion with outbreaks of diphtheria in households that bacteriological examination revealed the presence of the diphtheria bacillus in a percentage of those members of households who were apparently in good health. In March last this procedure was, as far as possible, adopted on systematic lines, and during the ten months 322 such "contacts" have been examined, with the result that the diphtheria bacillus was demonstrated in 34, representing 10·5 per cent. During the year 1032 rats—542 from the city and 490 from shipboard—were taken to the laboratory and examined for plague. No trace of this disease, however, was found in any of them.

Compliment to Professor J. G. McKendrick.

The business committee of Glasgow University General Council, of which Professor McKendrick was for some time convener, has resolved to initiate a movement to recognise in some way Professor McKendrick's long and distinguished connexion with the University and the city. It is intended that the movement shall be open to all who desire to testify their appreciation of Professor McKendrick and of his public and private services. A meeting will shortly be held to make arrangements, and meantime communications on the subject may be addressed to Mr. Archibald Craig, clerk of the general council.

New Joint Hospital at Duntocher.

The new joint hospital near Hardgate, Duntocher, was opened last week. The hospital occupies an ideal situation, the ground extending to fully three acres, upon which are six buildings in all. The administrative block, which has excellent accommodation, is in the centre of the site and to the east and west are the scarlet fever and the enteric fever pavilions respectively, the former having accommodation for 13 beds and the latter for nine beds. The hospital, which is built of red sandstone, will cost about £11,000. The population of the district to supply the hospital is about 20,000, but a little more accommodation has been provided than is likely to be required in the meantime.

Jan. 22nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Royal Commission on the University of Dublin and Trinity College.

THE report of the members of the Royal Commission on the University of Dublin and Trinity College appeared on Jan. 22nd. The document divides itself into two sections. 1. The commissioners recommend a series of reforms in the internal administration of Trinity College, as, for instance, the reconstruction of the governing board, which will give all the Fellows (junior as well as senior) and professors a voice in its management and a radical reform in the system of election to fellowships, as well as a vital change in the constitution of the College council, in the arrangement of

[1] We hope to publish an obituary notice in an early issue.—ED. L.

studies, and in the appointment of professorships, the adoption of which will modernise Trinity College and will give an immense stimulus to its energy and a vast extension to its intellectual outlook. 2. The commissioners gave their views as to how the vexed question of university education in Ireland is to be settled. Five different schemes to overcome the "religious difficulty" are discussed, and in the end the problem in Ireland was left as unsettled as is that of the English primary education question. The commissioners were unanimously of opinion that it was impossible to recommend any changes in the constitution of Trinity College which would make it acceptable to the Roman Catholic bishops, as the latter had assured them that they would not accept any scheme of mixed education in Trinity College and had disclaimed any desire to have changes made in the constitution of the College for their sakes. The *Times* in a leading article of Jan. 22nd remarks that the commission has left the main problem submitted very much as it was before. The problem is, of course, how to overcome the religious difficulty which obstructs the development of university education in Ireland. The commissioners, however, have with one dissentient recommended the establishment of a new college acceptable to Roman Catholics in Dublin. As regards the medical school, they recommend that effect should be given to the agreement embodied in the joint statement of the board of Trinity College and the President and Fellows of the Royal College of Physicians as submitted to the commission.

The Belfast Municipal Elections.

The remarkable result of the municipal elections held in Belfast on Jan. 15th, ending as they did in the return of all the candidates nominated by the Citizens' Association and pledged to economy, efficiency, and reform in civic administration, is an event unparalleled in our municipal history. Never before did such a large proportion of electors vote and the result has afforded the greatest satisfaction to all those who for the past year have pressed for a reform in the public health administration of the city. The uprising of the citizens was due in great measure to the controversy over the appointment of the medical officer of health. The action of the old corporation in this matter afforded the public an object-lesson in municipal tactics and the lesson has evidently been taken to heart. The Citizens' Association and the Ulster Medical Society have educated Belfast and have enabled the public to put on record their complete condemnation of a policy which, instead of grappling with the ominous condition of the health of the city, sought to minimise facts and to explain away statistics, while stigmatising the men who refused to shut their eyes and lips as slanderers. At the last meeting of the public health committee the following motion was carried:—

> That a return be prepared and submitted by the medical superintendent officer of health of houses detrimental to the public health of the city or that are injurious to the health of the occupants, and also for maps showing the property already dealt with.

The public health committee is now awakened but the confidence of the citizens of Belfast has been shattered.

Belfast District Rural Council.

At a meeting of the Belfast district rural council held on Jan. 18th Mr. S. B. Coates submitted a report regarding different districts. 1. In the Whiteabbey district there has been an outbreak of typhoid fever caused by infected milk supplied by a dairy in the Larne union. 2. The Blackstaff river, which runs through the centre of Belfast, is being polluted by sewage contamination from several sources and its condition is becoming worse. The council decided to communicate with those causing this nuisance of the Blackstaff stream and also to adopt the Infectious Diseases (Notification) Act, 1877, and the Infectious Diseases (Prevention) Act, 1890, to come into operation on March 1st.

Epidemic Cerebro-spinal Meningitis in Belfast.

Those who wish to study fevers should come to Belfast, for now, in addition to almost every other type, we have an outbreak of that comparatively rare disease, cerebro-spinal meningitis. Five cases out of one family were sent to Purdysburn fever hospital where two have died. Unfortunately, one of the senior medical students of the Belfast Medical School sickened with symptoms of the disease on Jan. 13th and died on the 15th. Lumbar puncture revealed the presence of the specific diplococcus and in the fatal cases the organism was cultivated from the affected organs.

The Stoneyford Water-supply of Belfast.

At the quarterly meeting of the Lisburn rural council held on Jan. 19th Dr. R. Alexander of Knocknadona dispensary district and Dr. D. P. Gaussen of Dunmurry reported very serious pollution of the Stoneyford catchment area (one of the sources of the Belfast water-supply) through surface water, liquid manure, &c., from farms in the catchment area getting into streams leading to the reservoir. It was resolved that the reports should be entered on the minutes and that copies should be sent to the authorities concerned in Belfast. There is no doubt that, if the water-supply at Stoneyford is to be above suspicion, the Belfast water commissioners must buy up all the farms in this catchment district.

Death of Mr. James C. McCleery, L.R.C.S. Irel.

Death removed on Jan. 19th, at his residence, Marsden Villa, Antrim-road, Belfast, the oldest member of the medical profession in Belfast, Mr. J. C. McCleery, at the advanced age of 83 years. Many years ago when he was a contemporary of the late Dr. James Smith, Dr. T. K. Wheeler, and Professor Cuming, Mr. McCleery, who lived then in the centre of the city of Belfast, had a very large and busy practice; about 20 years ago he retired from active work, but to the end he took the greatest interest in general affairs and preserved the genial spirit of his boyhood and youth. He was always pleasant and courteous, and was extremely popular with all who came in contact with him. His medical contemporaries had the highest opinion of his professional skill and ability. The utmost sympathy is felt with his widow and children.

Cork District Lunatic Asylum.

Dr. James J. Fitzgerald has been elected medical superintendent of the Cork District Asylum. The committee of management met on Jan. 14th, when Dr. Fitzgerald, formerly of Carlow, was unanimously elected. It will be remembered that Dr. J. P. Cashman was chosen some months ago by the casting vote of the chairman and that the Lord Lieutenant sent a letter stating that the appointment was illegal and that another election should take place. The result of the recent election is as above. The appointment is considered an important one in Cork and the election caused much interest.

Jan. 22nd.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Public Health.

THE excessive delay of the Direzione Generale di Statistica in publishing its reports prevents me from reviewing the public health, as a whole, for an earlier year than 1903. In that year the mean death-rate for the Italian kingdom was 22·25 per 1000. Taking the provinces first, the least healthy were those of Foggia and Bari, with a mortality of 30·7 for the former and 29·3 for the latter, while the most healthy were those of Treviso and Pisa, with a mean of 18 per 1000. Of the 69 capital cities of the provinces the maximum death-rate was reached at Catanzaro (Calabria), with a mortality of 32·4 per 1000; the minimum being that of Trapani (Sicily), with only 14·2. Of the great centres of population the healthiest were Turin, Rome, Genoa, Milan, and Palermo. While among the provinces those of the south showed the greatest mortality, among the cities there was no distinction between north and south as to salubrity—Bergamo, for example, in the Alta Italia, being little better than Catanzaro—a fact which shows how much leeway, in a sanitary sense, Italy has yet to make up. There is this grain of comfort, however, to be gathered from the report for 1903—namely, that among the healthiest provinces were Trapani, Grosseto, Rome, Cosenza, and Sassari, which but a few years ago were scourged with malaria, an endemic malady which all through Italy is gradually lessening in area and intensity. For 1903, as I have said, the mortality was 22·25 per 1000. In the next year it fell to 20·95. Unfortunately that advantage was not maintained and in 1905 it rose again to 21·73, although in that year small-pox had been virtually stamped out, malaria (thanks to the steadily progressive consumption of State-supplied quinine) had been much diminished, and other infective or contagious diseases had been in full defervescence. Italy, indeed, is a long way off the sanitary ideal contemplated by Agostino Bertani in his "Codice Igienico," and is

not yet near the 15 per 1000 of other nations. Still she is on the progressive grade, "eppur si muove," and with her economic rehabilitation and the re-invigorated life of her academic and scientific institutions she must surely minimise the interval that divides her from the "Bertani goal" ere the twentieth century is many years older.

The Post-graduate Cliniques at Milan.

Jan. 11th was a medico-chirurgical *festa* at Milan, dedicated as it was to the opening of the Istituti Clinici di Perfezionamento the completion of which will ere long be an epoch-marking event in the Alta Italia. The Istituto Ostetrico-Ginecologico is already a *fait accompli*, the others will rapidly follow suit, while the post-graduate curriculum as a whole was appropriately initiated by an address on the History of Medicine by a master of the subject, Dr. Piero Giacosa, professor of materia medica in the University of Turin. That history will constitute of itself a special feature in the post-graduate curriculum, commencing with a survey of so-called "popular medicine," then settling down to the evolution of its first, rude premature theories, contrasting the "dogmatic systems" characteristic of the peoples of the Far East with the "empirical systems" peculiar to those of the West. Then the course will take cognisance of medicine in its relation to philosophic speculation, to the religion, the customs, the commerce, and the social development of humanity. The influence of Christianity on theoretical and practical medicine will be duly considered, with full reference to the "monastic" and the "Saracenic" episodes in its history. Then, gradually working up to the epoch in which medicine assumes the form and substance of an independent science, the course will take in succession the various discoveries which have revolutionised theory and practice—by which time the student will be in a position to bring his critical faculties into play, so as to recognise the "traditional error" still nestling in current doctrine, and finally to reach the organic conception of health and its opposite made possible by "that magnificent *ensemble* of inductions which constitute the medicine and biology of to-day." The address in which this outline of the medico-historical course was adumbrated evoked repeated plaudits from the audience, professional and lay, which thronged the obstetrico-gynæcological pavilion and, in its published form, will find many to appreciate its conclusions, if not, indeed, to profit by the example it holds out to other "clinici di perfezionamento." The series of "courses" in post-graduate medicine will include one on the Physio-pathology, Theoretical and Clinical, of Social Maladies, by Dr. Edoardo Bonardi, professor of special pathology in the University of Pavia, in which cognisance will be taken of anæmia, rachitis, pellagra, malaria, typhoid fever, and the group of bacillary infections, alcoholism, uricæmia, diabetes, polysarcia, and arterio-sclerosis. Another course, that of the epidemico-contagious diseases (scarlet fever, measles, small-pox, and diphtheria) will be given by Dr. Polverini, professor of "exotic medicine" in the Istituto di Studi Superiori in Florence; another on Clinical Orthopædia, by Dr. Galeazzi of the Institute for Rachitis in Milan; another on the Physio-pathology of Infective Diseases, by Dr. Belfanti, professor of bacteriology also in Milan; another on Traumatology, by Dr. Baldo Rossi; another on Ophthalmic Medicine and Surgery, by Dr. Ferri and Dr. Denti—to say nothing of the course on Clinical Obstetrics and Gynæcology, conducted by Porro's distinguished successor, the Senator Mangiagalli, and a fully equipped staff. Professor Mangiagalli, I may add, is the dean of this "new medical faculty," as the profession in Milan call it—a faculty which will reinforce itself from other schools (Turin, Florence, &c.) with eminent authorities in such subjects as Public Hygiene, Industrial and Commercial, and similar themes of universal interest.

Jan. 21st.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Radio-activity of Water from Springs.

THE inclusion of radium amongst the curative agents of health resorts and medicinal waters has naturally led to a search for this substance in all the so-called "indifferent" thermal waters, the action of which could not be explained hitherto. A large number of the Austrian health resorts have now been found to possess a more or less considerable quantity of radio active substances in their springs, and the deposits of the hot sulphur springs in Baden near Vienna, in Mehadia, and in Pistyan are useful as a source of radium. The most important of all these places, however, is Joachimsthal, where the pitchblende is found from which M. and Madame Curie obtained the first samples of radium. The mines there are the property of the Austrian Government which has ordered that the radium extracted from 10 tons of the pitchblende shall be delivered to the Vienna Academy of Sciences for distribution amongst hospitals, physical laboratories, and similar institutions. In Joachimsthal the water from the mines will be made use of for bathing purposes, and the establishment of a "radium curhaus" for certain ailments is contemplated by the local authorities. It may be mentioned that the Joachimsthal mine water has already been employed by medical men in cases of neurasthenia and anæmia, and of prostatic enlargement. The latter method has been already tried in Bad Gastein with satisfactory results, but it was found that the water must be used cautiously, as general symptoms (from the disintegration of the prostatic tissue) made their appearance in one case.

A Proposed Increase of Medical Fees.

At a meeting of the Union of Medical Clubs, held recently in Vienna, a resolution was adopted in which all practitioners were asked to raise their fees uniformly. The present social and financial conditions of medical practice are disheartening, for the cost of food, lodging, and other necessaries of existence have increased so much that very many medical men are unable to maintain the position required by their profession. One of the latest burdens laid upon the practitioner is the raising of the amount payable for using the telephone, which has become dearer by 50 per cent. since the new year. The making of a charge for consultations by telephone had for a long time been in contemplation but the Aerztekammer (Medical Council), while not exactly discouraging the proposal, was not much in favour of it. Now it has left the question quite open for the profession to deal with and a unanimous decision will be undoubtedly arrived at in all the clubs. As regards the new fees the Aerztekammer is of opinion that the rate of payment for medical assistance is a matter for private arrangement and cannot be fixed for all uniformly. But a new tariff, a so called minimal tariff, has been worked out, below which no practitioner should go unless the patient be really indigent. This tariff provides a fee of three kronen (2*s.* 6*d.*) for advice at the practitioner's house during consulting hours and a fee of from four to six kronen (from 3*s.* to 5*s.*) for attendance at the patient's residence, with an addition of 50 per cent. for night visits. For obstetrical or surgical work special fees are to be charged with a specified lower limit. Altogether the present scale of fees (which is, however, not binding for all practitioners in Vienna) has been increased by about 50 per cent. The public has been informed unofficially, but still very distinctly, through the newspapers, of the reasons for the increase of medical fees. Naturally the public try to pay as little as possible for medical attendance, but with the aid of organisation and unanimity the objections will be overcome.

Vital Statistics.

The last week of the year 1906 showed a few remarkable figures as regards the mortality and morbidity of Vienna. The sudden change of the weather and the great difference of temperature between morning and afternoon on Dec. 25th (in the morning — 7° C. and in the afternoon + 6° C.) caused a rapid increase of the diseases of the upper air passages, and the wet warm weather had a harmful effect on the spread of infectious exanthematic fevers. The rate of mortality was 19·7 per 1000 and 743 deaths were reported in this week, of which three were due to typhoid fever, nine to measles, eight to scarlet fever, and eight to diphtheria. Pulmonary tuberculosis caused 110 deaths, and neoplasmata caused 50 deaths. No case of variola has been seen in Vienna since the beginning of 1905; this long absence of the disease supplies an excellent argument against the antivaccinat on agitators. The number of infectious diseases which must be notified has been increased, trachoma and leprosy being added to the list, so that now there are 25 diseases classified as *anzeigepflichtig* (compulsorily notifiable).

A Case of Fistula after Thyroiditis.

Dr. Paul Albrecht has recently had occasion to operate upon a woman for a condition which hitherto has been

recorded only 16 times. The patient, who was 50 years of age, had been suffering from enlargement of the thyroid body, and seven months previously to the operation the gland became acutely inflamed, in consequence, as was supposed, of a slight injury. A sinus leading into the left half of the thyroid body formed after some time, and, as it was very unpleasant and inconvenient to the patient and formed a cause of frequent recurrences of the inflammation, it was decided to operate. The operation proved a very difficult one on account of the existence of very extensive adhesions between the thyroid body and the neighbouring tissues, including the trachea, the submaxillary gland, and the large vessels. As regards the cause of the inflammation, the injury referred to could not with certainty be held responsible for it. A much more plausible hypothesis was the immigration of micro-organisms from the trachea by means of the lymphatics. The etiology of thyroiditis is not definitely known and the pathological anatomy is also not very clear. The 16 cases observed hitherto have not been examined methodically. In the present case there was found granulation tissue corresponding to the parenchymatous investment of the cystic tumour. In the inflammatory tissue there were many giant cells, containing colloid substance and needles of cholesterin. Similar findings have been reported in cases of acute thyroiditis without suppuration and in a case of Basedow's disease.

Jubilee of Professor Winternitz.

Professor Winternitz, who has just completed his seventieth year, will shortly celebrate his golden jubilee as a member of the medical profession. When he began medical study students of 16 or 17 years of age were admitted to the anatomical lectures and after a curriculum of three years could obtain their diploma. Professor Winternitz was the first among the Austrian medical teachers to call attention to the importance of hydropathic procedures in the treatment of disorders of the nervous system and metabolism, and numerous pupils of his clinic are now the directors of clinics for, or teachers of, hydropathy in Austria as well as in Germany.

Jan. 21st.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Medical Events in 1906.

IN Budapest the prominent event of the past year was the National Congress on Cancerous Diseases, the meetings of which were described in THE LANCET of Dec. 8th, 1906, p. 1626. The question of the third university in Hungary has been brought a step nearer to the realisation of the idea. Among topics of professional interest the most important feature of the year has been the movement for increasing the remuneration of the district and county medical officers. Their private fees are fixed by the State and these, together with their official salaries, are very low. The official salary of a district medical officer in the poorer parts of Erdély in Transylvania does not exceed £50 a year, and the fee for advice at the practitioner's house is fixed at 6*d.*, while the fee for attendance at the patient's residence is 1*s.* There are districts where the private fees do not in a year amount to more than £40 or £50. These intolerable conditions will be altered now. The subject has come before Parliament and Count Andrassy, the Minister of the Interior, expects that the official salaries of county medical officers will be raised so as to range between a minimum of £100 and a maximum of £120.

The Prevention of Tuberculosis.

A sanatorium for tuberculosis will be erected in the near future for the workpeople of the State machine works in Algyogy, a charming country place in Hungary, where fresh air, a fine river, and beautiful scenery supply the conditions suitable for a sanatorium. The initiator of this is Mr. Wekerle, the President of the Ministry, who when reading the mortality statistics of the men employed in the State machine works was struck by the high proportion (14 per cent.) of deaths caused by consumption.

The Spread of Venereal Diseases.

A census of venereal patients, be it made with ever so much care, is always incomplete, partly because many patients treat themselves and partly because of the great number of irregular practitioners or quacks who compete with medical men in treating venereal diseases. Owing also to the long duration of venereal diseases patients often lose patience and go from one medical man to another, with the result that the same patient appears in the statistics several times. In the military statistics, however, all these difficulties of the enumeration are avoided and trustworthy data are obtained. According to the military statistics the prevalence of venereal diseases per 1000 men in the Austro-Hungarian army was as follows for the quinquennial periods from 1881 to 1900: 73·6 for the period 1881–86; 65·3 for the period 1886–91; 63·2 for the period 1891–94; 64·8 for the period 1894–95; and 61·0 for the period 1896–1900. The conclusion derived from these figures is that the incidence of syphilis is decreasing. An examination of the analogous statistics of other countries shows that the incidence of syphilis is highest in the English and Dutch armies. This is probably due to the large number of troops stationed in the colonies where venereal diseases are rife among the native population.

Jan. 19th.

Obituary.

THOMAS SAVAGE, M.D. ST. AND., F.R.C.S. ENG.

AMONG the numerous victims of the recent earthquake at Jamaica we greatly regret to find the name of Dr. Thomas Savage. Dr. Savage had made several trips to the West Indies and on this occasion sailed on Dec. 29th, 1906, with his nephew, Mr. O'Connell, and a lady friend of the family, Miss Hall, for the benefit of his health. The first report of the terrible event at Kingston caused considerable anxiety to his family; these fears for his safety were confirmed by the sad news of his death and of the death of those who accompanied him.

Dr. Savage was born at Wolverhampton in the year 1839. Destined at an early age for the medical profession he was apprenticed to Mr. Hadley of Ashted, Birmingham. He became a Member of the Royal College of Surgeons of England in 1860 and a Fellow in 1869; also in 1877 a Member of the Royal College of Physicians of London and M.D. of the University of St. Andrews in 1862. After his pupilage he was for two years house surgeon to the Eye Hospital, subsequently settling in general practice at Bordesley, a suburb of Birmingham. Dr. Savage was attached to Sydenham College—the then medical school—as lecturer on botany, and on the amalgamation of this institution with Queen's College he was appointed professor of comparative anatomy. In 1871 Dr. Savage was chosen as one of the four surgeons to the newly-founded Hospital for Women, where shortly after, on the resignation of one of the staff, he became senior surgeon, a position which he held until some ten years ago when he was appointed consulting surgeon. The circumstances attending his retirement were unfortunately due to the loss of one arm, disease in the elbow of which necessitated amputation. On his appointment to the Hospital for Women Dr. Savage devoted exceptional ability and energy to the work of that institution. He acquired considerable reputation as an operating surgeon and though the dominant power and personality of Mr. Lawson Tait on the same staff and in the same pursuit exercised much influence, Dr. Savage justly shared the fame which the hospital achieved in the impetus given to the position of gynæcology and in the extension of this knowledge to the profession. He subsequently became professor of midwifery at Queen's College, and on the merging of this school with the new University of Birmingham he was elected professor of midwifery. The chair was at this time divided between midwifery and gynæcology, and the latter was elevated into a professorship the occupancy of which was allotted to Mr. Lawson Tait. Professional success was attended with increased duties. Dr. Savage was appointed consulting surgeon to the Wolverhampton Hospital for Women, and to the Kidderminster Infirmary. He was at times also president of the British Gynæcological Society, of the Birmingham branch of the British Medical Association, and of the Medical Society in that city.

As a surgeon Dr. Savage was skilful, accurate, and careful. He enjoyed the confidence of his professional brethren as well as of a large circle of patients. He published the Ingleby lectures on Abdominal Section in 1881; also papers

on Oophorectomy and on the Treatment of Uterine Myoma, and, in 1891, the presidential address to the branch entitled "Some Aspects of the Present State of Gynæcology." Nor did his activity cease on his retirement from the work of his profession. After his illness he took a house in the country at Knowle in Warwickshire where he still continued to maintain an interest in many charitable and useful kinds of work. There he was appointed a magistrate for the county; he became also a county councillor, in which capacity he rendered valuable work as a member of the sanitary and education committee of the county council. His judgment was sound, his knowledge was widely varied, and his tastes were cultured. Added to a high sense of duty and steadfastness of purpose, he possessed settled principles of fairness and impartiality. His many qualities of character made him much respected as a citizen and valued with deep regard as a friend.

Dr. Savage married in 1864 Miss Gosling of Richmond, Surrey. He leaves his widow, one son (Dr. Smallwood Savage), and three daughters. One son, Dr. Arthur Savage, died a few years since on the threshold of a career full of bright prospects of success.

WALTER JOHN SYKES, M.D. EDIN., D.P.H. CAMB., F.I.C.

THE public analysts of this country have lost a great friend and a valued contributor to applied science by the death of Dr. Walter John Sykes, who was editor of the *Analyst* for the past 15 years. Dr. Sykes died suddenly at his residence in East Grinstead on Dec. 16th last. He was born at Wakefield in 1842 and was educated at the local grammar school. He chose medicine for his profession and graduated as M.D. in 1866 at the University of Edinburgh. He was house surgeon at Clayton Hospital, Wakefield, in which town he ultimately established a general medical practice, which after a few years he gave up and then went to Heckmondwike. He was subsequently appointed medical officer of health of the borough of Portsmouth, succeeding Dr. George Turner, now chief medical officer of the Orange River Colony. He gave up this appointment, which included that of public analyst, in 1886 and decided to take up the study of chemistry, chiefly from the analytical point of view. He devoted special attention to the chemistry of brewing and published several important papers on the subject and finally wrote a book of admitted practical value entitled "The Principles and Practice of Brewing," the second edition of which has only recently passed through the press. The current number of the *Analyst* contains an appreciative and feeling notice of Dr. Sykes's career and attractive personality by Mr. Otto Hehner and an excellent portrait.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Dr. A. E. Macdonald, formerly professor of mental diseases and of forensic medicine at the University and Bellevue Hospital, New York. Dr. W. J. Herdman, professor of neurology and psychiatry in the Ann Arbor University, Michigan. Dr. Dron, one of the senior surgeons in Lyons.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At the Congregation on Jan. 17th the following degrees were conferred:—

M.D.—G. S. Keeling, Caius.
M.C.—E. C. Hughes Clare.
M.B. and B.C.—O. May, St. John's; and P. R. Parkinson, Caius.
B.C.—G. W. Goodhart, Trinity; P. P. Laidlaw, St. John's; J. W. Linnell, St. John's; D. G. Pearson, Pembroke; N. Wilson, Pembroke; G. F. S. Bailey, Caius; J. H. Iles, Caius; B. K. Nutman, Jesus; F. P. Young, Christ's; F. A. Barker, Emmanuel; T. S. Hele, Emmanuel; S. L. Walker, Sidney Sussex; and W. H. R. Sutton, Downing.

UNIVERSITY OF OXFORD.—The following are the degree days in the present term:—Saturday, Feb. 16th, at 2.30 P.M.; and Thursday, March 14th, at 10 A.M.—The days fixed for the commencement of the B.M. examinations in 1907 are Thursday, June 20th, and Thursday, Dec. 5th. Names must be entered not later than 10.30 A.M. on Tuesday, June 4th, and Tuesday, Nov. 19th, respectively.—The day fixed for receiving names for the examination for the degree of Master of Surgery is June 7th.—The examination for the Radcliffe Travelling Fellowship, already announced, will commence on Tuesday, Feb. 26th. The names are to be sent in to the Regius Professor of Medicine on or before Saturday, Feb. 9th. Full details are given in the *University Gazette* of Jan. 18th, 1907.—Examinations for scholarships in natural science are announced as follows: March 12th, Keble College; March 19th, Merton College and New College.—The Vice-Chancellor has appointed the Right Honourable Lord Curzon of Kedleston, M.A., Hon. D.C.L., of All Souls' College, G.C.S.I., G.C.I.E., F.R.S., who was appointed last year but was prevented from delivering the lecture, to be the Romanes Lecturer for 1907.—Mr. C. M. Burrell of the Merchant Taylors' School has been elected to a scholarship in natural science in University College.

MEDICAL MEN AND COMMISSIONS.—At the Bournemouth county court on Jan. 18th, before Judge Philbrick, K.C., Dr. G. E. J. Crallan sought, as secretary of the Association of Medical Men Receiving Resident Patients, to recover from Dr. T. C. Fisher, of Torquay, £6 11*s.* 3*d.*, being 5 per cent. commission on the sum of £131 5*s.*, the amount of fees received up to the end of 1906 from a patient alleged to have been introduced to the defendant through the medium of the association. In giving judgment, his honour said: "An association of professional gentlemen which by its rules stipulated for the payment of commission on sums received in respect of patients was somewhat of a novelty. It was not his duty to act as censor, but he was by no means convinced that such associations, or such stipulations, as these deserved encouragement, and as he did not believe that the patient was obtained through the association he gave judgment for defendant."

LITERARY INTELLIGENCE.—Among the additions to the "World's Classics" to be published immediately by the Oxford University Press are the evergreen works of Professor Oliver Wendell Holmes "The Poet" and "The Professor at the Breakfast Table." Scott's "Lives of the Novelists," with introduction by Mr. Austin Dobson; Thackeray's "Pendennis," with introduction by Mr. Edmund Gosse; and "Sheridan's Plays," with introduction by Mr. Joseph Knight, are also announced in the same series.—Two monographs of interest to aural surgeons are shortly to be published by Messrs. J and A. Churchill. One is entitled "Some Points in the Surgical Anatomy of the Temporal Bone from Birth to Adult Life," by Mr. Arthur H. Cheatle, F.R.C.S. Eng., aural surgeon to King's College Hospital. The work is illustrated with reproductions of photographs of specimens. The other work is upon "The Labyrinth of Animals," and contains 30 reproductions of stereoscopic photographs. The author is Mr. A. A. Gray, M.D. Glasg., F.R.S. Edin., aural surgeon to the Victoria Infirmary, Glasgow.

BRITISH GYNÆCOLOGICAL SOCIETY.—Mr. F. Bowreman Jessett, President of the society, took the chair at the annual dinner, which was held at the Monico Restaurant, Regent-street, London, on Jan. 17th. Dr. F. H. Champneys, in submitting the toast of "The British Gynæcological Society," said in regard to the amalgamation scheme of the medical societies that there were those who prophesied that new societies would be formed outside the main body as had happened abroad. But as far as related to the section which would be formed by the union of the Obstetrical and Gynæcological Societies the amalgamation of those bodies would render it impossible for any successful opposition to be set up outside the section. The toast was replied to by the chairman. Mr. W. D. Spanton proposed the toast of "The Royal College of Physicians of London and the Royal College of Surgeons of England," which was acknowledged by Dr. Amand Routh, who, speaking on behalf of the Royal College of Physicians, declared that the work of the College had been for the advantage and dignity of the profession and from that point of view it did not lose sight of gynæcology. Mr Henry Morris, President of the Royal College of Surgeons, who also replied to the toast, said that it must be admitted by all that the introduction of gynæcology into surgery was a great advantage, for it without doubt led to the better understanding and the better treatment of a great number of maladies. "The Obstetrical Society of London" was the next toast, which was proposed by Dr. H. Macnaughton-Jones, who took the opportunity to bestow warm praise on that society for throwing itself in with the common lot in the amalgamation scheme of the societies, thereby enabling others

to share its splendid library and the large balance standing to its credit at the bank. Dr. H. R. Spencer acknowledged the toast on behalf of the Obstetrical Society of London and said that he looked upon the union of the Obstetrical and Gynæcological Societies as only a stage towards another union which would take place some day—namely, the union of the Royal College of Physicians of London with the Royal College of Surgeons of England, for it was those Colleges which ought to form the Royal Academy of Medicine in this country. Dr. Clement Godson proposed "The Guests," which was acknowledged by Director-General H. M. Ellis, R.N., and Surgeon-General Sir Thomas J. Gallwey, A.M.S. The last speech of the evening was from the chairman who paid a graceful tribute of thanks to Dr. H. Overy for his valuable services as honorary secretary.

APPRECIATION OF THE SERVICES OF A POOR-LAW MEDICAL OFFICER.—At a recent meeting of the Macclesfield board of guardians the chairman referred in felicitous terms to Mr. James B. Hughes, M.R.C.S., who for 40 years has been medical officer of the Macclesfield union infirmary. The chairman, after dealing with the remarkable improvement which had taken place with regard to the care of the patients during Mr. Hughes's connexion with the infirmary, said it was not often that Plato was quoted in a board of guardians, but Plato's remark that "No physician considers his own good in what he prescribes, but the good of the patient," particularly applied to Mr. Hughes, who had given of himself and of his best for the benefit of the poor, and he therefore asked the board to join in congratulating him upon having fulfilled 40 years' service. A vote of congratulation was unanimously carried.

WHITBY COTTAGE HOSPITAL AND THE MEDICAL STAFF.—The abuse of the out-patient department of the Whitby Cottage Hospital has induced the whole of the honorary medical staff to resign, and the matters in dispute have not been settled yet. As recorded in THE LANCET of Dec. 22nd, 1906, p. 1760, the medical men in a body walked out of the room in which the annual meeting was proceeding. Various endeavours have been made in the interval to come to some arrangement with the medical staff but the deadlock still continues. An influential committee, consisting of the Rev. Canon the Marquess of Normanby, Major R. Bell Turton, J.P., County Alderman R. C. Yeoman, J.P., Mr. E. H. Chapman (barrister), and the Rev. T. Rathmell (superintendent Wesleyan minister), has been appointed to confer with the medical men and to make whatever arrangements seem feasible with a view to carry on the hospital. A meeting was arranged with a committee from the members of the Whitby Medical Society, of which Dr. W. E. F. Tinley is the secretary, but the medical men declined to discuss the hospital committee's two suggested amendments unless their proposed alteration of a rule affecting the out-patient department was accepted, viz.:—

> That the out-patient department shall be limited to those who had been in-patients of the hospital and require further attendance, and to those who had not been in-patients, but who are recommended by a medical man, except in urgent accident cases.

The conference of the hospital sub-committee with the representative of the medical staff (Dr. G. B. Mitchell) was abortive and the deadlock continues, but it is hoped that a satisfactory *modus vivendi* will soon be attained.

LEPROSY IN BRITISH GUIANA.—Mr. G. D. Bayley, acting assistant Government Secretary of British Guiana, in his report in the Blue Book of the colony for the year 1905–06, mentions that the system of segregation of lepers continues to be enforced so far as possible. The total number of inmates in the Leper Asylum on March 31st, 1906, was 420. The deaths during the year had numbered 71 and the discharges 20. The indoor and outdoor work was carried on as usual. The net cost of the institution for the year was £4609, exclusive of the medical officer's salary. The colonial legislature has enacted an ordinance making further provision for the care of lepers and for the taking of precautions against the spread of leprosy which unfortunately is greatly on the increase in the colony. The ordinance provides that lepers wandering abroad, and others who cannot be properly isolated in their own homes, shall be sent to the leper asylum. Provision is made for householders and employers of labour reporting cases of leprosy to a medical officer. Certain trades, in which articles of food or clothes have to be handled, are prohibited to lepers and precautions are authorised for preventing the landing of lepers in the colony. Power is also given to declare part of the leper asylum to be a prison, in which lepers sentenced to imprisonment may be confined, so as to avoid the risk of lepers carrying contagion to an ordinary prison. A similar provision is made for lunatic lepers so as to prevent the risk of contagion to persons in the ordinary lunatic asylums.

CENTRAL LONDON OPHTHALMIC HOSPITAL (GRAY'S INN-ROAD).—The new pathological, bacteriological, and x ray laboratories of this hospital, which were long felt to be a necessity, are now fully equipped for carrying on the work of the hospital. It is further proposed that they shall be open to students for research work in connexion with the pathology of the eye. Classes with lantern demonstrations have been arranged to begin in February. Special attention will be paid to the histology of the eye and to the more recent work on opsonins. The hospital affords ample material for the proper carrying on of research work in these subjects.

MEDICAL BARRISTERS.—Two medical men are to be "called" this Hilary term—namely, by Gray's Inn, Hedley Coward Bartlett, L.R.C.P. Lond., M.R.C.S. Eng., of Saffron Walden, Essex; and by the Middle Temple, Heinrich Oppenheimer, LL.B., M.D. Heidelb., M.R.C.P. Lond., M.R.C.S. Eng., of Hampstead.

BOOKS, ETC., RECEIVED.

SMITH, ELDER, AND CO., 15, Waterloo-place, London, S.W.

Climatotherapy and Balneotherapy. The Climates and Mineral Water Health Resorts (Spas) of Europe and North Africa. Including the General Principles of Climatotherapy and Balneotherapy, and Hints as to the Employment of Various Physical and Dietetic Methods. Being a third edition of "The Mineral Waters and Health Resorts of Europe," much enlarged in respect to Medical Climatology. By Sir Hermann Weber, M.D., F.R.C.P., Consulting Physician to the German Hospital, London, the Royal National Hospital for Consumption, Ventnor, and the Mount Vernon Hospital for Diseases of the Chest, Hampstead; Hon. President of the British Balneological and Climatological Society; and F. Parkes Weber, M.D., F.R.C.P., Physician to the German Hospital, London, and to the Mount Vernon Hospital for Diseases of the Chest, Hampstead, Member of the British Balneological and Climatological Society. Edited by F. Parkes Weber. Price 15s. net.

WATERLOW AND SONS, LIMITED, London Wall, London.

Lessons on Elementary Hygiene and Sanitation, with Special Reference to the Tropics. By W. T. Prout, C.M.G., M.B., C.M. Edin., Principal Medical Officer, Sierra Leone, Member of Legislative Council, Medical Officer of Health, City of Freetown, &c. Printed for the Colony of Sierra Leone. Price not stated.

W. B. SAUNDERS COMPANY, Philadelphia and London.

A Manual of Normal Histology and Organography. By Charles Hill, Ph.D., M.D., Assistant Professor of Histology and Embryology at the North-Western University Medical School, Chicago. Price 10s. net.

A Text-book of Obstetrics. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopædic, and the Philadelphia Hospitals, &c. Fifth edition, revised and enlarged. Price 21s. net.

Surgery, its Principles and Practice. By Various Authors. Edited by William Williams Keen, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume I. (to be completed in five volumes). Price, cloth, 30s. net.

Prevalent Diseases of the Eye. By Samuel Theobald, M.D., Clinical Professor of Ophthalmology and Otology in the Johns Hopkins University. Price 12s. net.

A Text-book of Pathology. By Alfred Stengel, M.D., Professor of Clinical Medicine, University of Pennsylvania; Physician to the Pennsylvania, University, and the Philadelphia Hospitals. Fifth edition, thoroughly revised. Price 21s. net.

The Technic of Operations upon the Intestines and Stomach. By Alfred H. Gould, M.D., of Boston. Price 21s. net.

Photoscopy (Skiascopy or Retinoscopy). By Mark D. Stevenson, M.D., Ophthalmic Surgeon to the Akron City Hospital; Oculist to the Children's Home, Akron, Ohio; Ophthalmologist to the White Hospital, Ravenna, Ohio. Price, cloth, 5s. net.

A Text-book on the Practice of Gynecology for Practitioners and Students. By William Easterly Ashton, M.D., LL.D., Fellow of the American Gynecological Society, Professor of Gynecology in the Medico-Chirurgical College, and Gynecologist to the Medico-Chirurgical Hospital, Philadelphia. Third edition, revised and enlarged. Price 27s 6d. net.

WETHERILL, H. EMERSON, 3734, Walnut-street, Philadelphia, Pa., U.S.A.

Hygromedry. By Henry Emerson Wetherill, M.D., Lt., Jr. Grade., Surg., and A.I.R.P., N.F.Pa. Price $2.50.

WILEY, JOHN, AND SONS, New York. (CHAPMAN AND HALL, LIMITED, London.)

Physical Chemistry in the Service of Medicine. Seven Addresses. By Dr. Wolfgang Pauli, Privat-docent in Internal Medicine at the University of Vienna. Authorised translation by Dr. Martin H.

Fischer, Professor of Pathology at the Oakland College of Medicine. First edition. First thousand. Price, cloth, $1.25 net, or 5s. 6d. net.

The Toxins and Venoms and their Antibodies. By Em. Pozzi-Escot. Authorised translation by Alfred I. Cohn, Phar. D. First edition. First thousand. Price, cloth, $1.00 net.; or 4s. 6d. net.

WILLIAMS AND NORGATE, 14, Henrietta-street, Covent Garden, London, W.C.

Transactions of the Epidemiological Society of London. New Series. Vol. XXV. Session 1905-1906. Price 6s. net.

WRIGHT, JOHN, AND CO., Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT AND CO., LIMITED, London.

The Essential Similarity of Innocent and Malignant Tumours. A Study of Tumour Growth. By Charles W. Cathcart, M.A., M.B., C.M. Edin., F.R.C.S. Eng. & Edin., Surgeon, Royal Infirmary, Edinburgh. Price 9s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BIRT, A. C., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Wantage District of the county of Berks.

CULROSS, J., M.B., C.M. Glasg., has been re-appointed Honorary Medical Officer to the Newton Abbot Hospital.

DOUTY, EDWARD H., M.A., M.D., M.C. Cantab., F.R.C.S., M.R.C.P., M.D. Paris, &c., has been appointed Surgeon to the Queen Victoria Memorial Hospital, Nice.

GRIMBLY, R. H., M.R.C.S., L.S.A., has been re-appointed Honorary Surgeon to the Newton Abbot Hospital.

HAYDON, E., M.B., C.M. Glasg., has been re-appointed Honorary Surgeon to the Newton Abbot Hospital.

HOSFORD, J. STROUD, F.R.C.S. Edin., has been appointed Honorary Assistant Surgeon to the Royal Eye Hospital, Southwark.

MARKS, URBAN, M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at the Worcester Infirmary.

POLLARD, G. S., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Midsomer Norton District of the county of Somerset.

ROSS, S. J., M.D. Vict., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Bedford District of the county of Bedford.

SHAW, W. F., M.D. Vict., has been re-appointed Resident Surgical Officer to the St. Mary's Hospitals, Manchester.

WATKIN, ARTHUR CHRISTOPHER, L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon at the Aberystwyth Infirmary.

YOUNG, J. STIRLING, M.B., Ch.B. Vict., has been appointed Fourth House Surgeon at St. Mary's Hospitals, Manchester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BANGOR, CARNARVONSHIRE AND ANGLESEY INFIRMARY.—House Surgeon. Salary £80 per annum, with board, washing, and lodging.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £100 per annum, with board and lodgings.

BRADFORD HOSPITAL AND WORKHOUSE.—Resident Assistant Medical Officer, unmarried. Salary £100, with rations, apartments, and washing.

BRISTOL DISPENSARY.—Medical Officer.

BRISTOL ROYAL INFIRMARY.—Resident Junior House Surgeon. Also Resident Casualty Officer. Both for six months. Salaries at rate of £50 per annum, with board, lodging, and washing. Also Resident Obstetric Officer. Salary £75 per annum, with board, lodging, and washing.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon for six months, renewable. Salary at rate of £60 per annum, with board, washing, and apartments.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Registrar for In patients. Honorarium 20 guineas a year.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Registrar. Honorarium £40 per annum.

CITY OF LONDON LYING-IN HOSPITAL, City-road, E.C.—District Surgeon for Upper Holloway.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Resident Medical Officer. Salary £100 per annum, with board, residence, and laundry.

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £30 per annum, with board, residence, and washing.

HAMPSTEAD GENERAL HOSPITAL.—Resident Medical Officer for eight months. Salary at rate of £80 per annum, with board and residence.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Honorarium £20, with residence, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, also Assistant Casualty Medical Officer, both unmarried. Salary in each case 25 guineas for eight months, with board and residence.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium of £25.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum and board.

KING EDWARD VII. SANATORIUM, Midhurst, Sussex.—Junior Assistant Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and attendance.

LEEDS, HOSPITAL FOR WOMEN AND CHILDREN.—Resident Clinical Assistant.

LIVERPOOL STANLEY HOSPITAL.—Honorary Physician. Also House Surgeon. Salary £60 per annum, with board, residence, and washing.

LONDON COUNTY COUNCIL.—Lecturers to Evening Classes for Midwives and Maternity Nurses. Fee £2 2s. a lesson.

LONDON LOCK HOSPITAL.—House Surgeon to the Female Hospital. Salary £80 per annum, with board, lodging, and laundry. Also Surgeon to Out-patients.

MANCHESTER, ANCOATS HOSPITAL.—Resident House Physician. Salary £80 per annum, with board &c.

MENSTON, NEAR LEEDS, WEST RIDING ASYLUM.—Second Assistant Medical Officer. Salary £200, rising to £250, with board and apartments. Also Fourth Assistant Medical Officer. Salary £150, rising to £180, with board and apartments.

NEWCASTLE-UPON-TYNE AND NORTHUMBERLAND SANATORIUM FOR CONSUMPTION, Barrasford-on-Tyne.—Resident Medical Officer. Salary £180 per annum rising to £270, with board and laundry.

NEWPORT BOROUGH ASYLUM, Caerleon (Mon.).—Assistant Medical Officer, unmarried. Salary £170 per annum, with board, apartments, and attendance.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—Honorary Anæsthetist.

PADDINGTON INFIRMARY.—Second Assistant to the Medical Superintendent for six months. Salary at rate of £72 per annum, with board, lodging, and washing.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant House Surgeon for six months, renewable. Salary £50, with board, residence, and washing.

REETH UNION DISTRICT AND WORKHOUSE, Yorkshire.—Medical Officer. Salary £37 10s.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Resident Medical Officer for six months. Salary at rate of £120 per annum, with apartments, board, and washing.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—Honorary Assistant Anæsthetist.

ROYAL PIMLICO DISPENSARY, 104, Buckingham Palace-road, S.W.—Visiting Medical Officer.

SHEFFIELD, UNIVERSITY OF SHEFFIELD.—Chair of Pathology.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 a year, with board and apartments.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, apartments, &c.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Two Assistant Resident Medical Officers, unmarried. Salary £80, with board and lodging.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Surgeon.

Births, Marriages, and Deaths.

BIRTHS.

EDELSTEN.—On Jan. 15th, at Brixton-road, S.W., the wife of Ernest A. Edelsten, M.B., M.A., of a son.

HODGSON.—On Jan. 18th, at Leyburn, Mitcham-lane, S.E., the wife of Charles Hodgson, L.R.C.P. Lond., M.R.C.S. Eng., of a son.

KEMPTHORNE.—On Jan. 9th, at Lahore Cantonments, India, the wife of Gerard Ainslie Kempthorne, R.A.M.C., of a daughter.

RANSFORD.—On Jan. 19th, at Croxley Green, Herts, the wife of Alan C. Ransford, M.R.C.S., L.R.C.P., of a son.

RYALL.—On Jan. 19th, at 77, Harley-street, W., to Mr. and Mrs. Canny Ryall—a son.

TIBBITS.—On Jan. 18th, at Jury-street, Warwick, the wife of Hubert Tibbits, M.B., of a daughter.

MARRIAGES.

AVELING—SHIMWELL.—On Jan. 23rd, at St. Wilfrid's Church, Northenden, by the Rev. Thomas Shimwell, M.A. (brother of the bride), assisted by the Rev. Lowrie Hamilton, M.A., Rector of the Parish, and the Rev. John Bruster, Vicar of Gatley, Leslie Baldwin Aveling, B.A., M.B., B.C., of Park Lane House, Royton, to Dorothy, second daughter of William James Shimwell, of Gatley, Cheshire.

SIMSON—CLARKE.—On the 17th, at St. George's, Hanover-square, by the Rev. Canon Bristow, M.A., of Southwark Cathedral, assisted by the Rev. Daven Jones, B.A., Vicar of Kidwelly, and the Rev. David Anderson, M.A., Rector, Captain Harold Simson, R.A.M.C., third son of Thomas Simson of Blackheath, to Kate Litton, eldest daughter of Ernest Clarke, M.D., F.R.C.S., of Chandos-street, Cavendish-square.

THOMPSON—CLARKE.—On Jan. 15th, at St. Peter's Church, Morley, by the Rev. H. T. Robinson, B.A., assisted by the Rev. F. Sykes, M.A., John Andrew Douglas, M.B., Ch.B. Edin., fourth son of Alexander Thompson, Esq., Barmeal, Wigtownshire, N.B., to Amy Winifred, second daughter of J. C. Clarke, M.R.C.S. and L.S.A., of Bank House, Morley, Yorks.—At home, Comberton House, Halesowen Feb. 17th and 18th.

DEATH.

PEDDIE.—On Jan. 19th, at Rutland-street, Edinburgh, from pneumonia, Alexander Peddie, M.D., F.R.C.P.E., &c., in his 97th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A GREAT ESTATE, ITS AGENT, AND THE MEDICAL PROFESSION.

WE refused recently to publish an advertisement sent to us by Mr. Henry Whitcomb in behalf of the Petworth Park Friendly Society, of which society he is secretary. We did this because we do not insert advertisements of vacancies for medical officers to such societies until we have seen the rules of the society, or until we have had an opportunity of learning the position enjoyed by the previous holder of the appointment if circumstances point to the advisability of obtaining the information. Mr. Whitcomb asked us to state our reasons "in common fairness to the committee and the president of the society, Lord Leconfield," whose estate, he informs us, "is one of the largest private estates in the South of England." We hasten to explain the situation quite clearly to Lord Leconfield and the committee. Firstly, we have never seen the rules of the Petworth Park Friendly Society. Mr. Whitcomb failed to send them to us, and a later communication from Mr. Herbert R. Watson, the chairman of the society, also failed to inclose them, though alluding to them as an inclosure. Secondly, the remuneration of the medical officer to the Petworth Friendly Society works out on the present terms at under 3*s.* per head per annum, for which sum he will be expected to attend in all directions of Petworth within a radius of seven miles, confinements and surgical cases included. We want Lord Leconfield to grasp the fact that this is extremely bad pay, and that we do not desire to help the society over which he presides in any intention which that society may have to continue to give such terms.

The decision that we were unable to insert the advertisement was strongly confirmed by the following letter which was later received by our manager:—

Jan. 22nd, 1907.

DEAR SIR,—The secretary of the Petworth Park Friendly Society has shown me the correspondence he has had with your paper in reference to this society. The Right Honourable Lord Leconfield is president of this society and as it appears to be one of your rules for advertisements that you should have a copy of the society's rules, I herewith enclose you one, but I gather from your letter that the real reason for not inserting the society's advertisement was that you had had an intimation from Petworth in reference to it. I quite anticipated that this was the case and therefore urged the secretary to write his letter of the 19th January.

For over 50 years this society has retained the services of a resident medical man in Petworth and increased the payment for attendance some ten or 12 years ago, so that for the last ten years it has averaged £75. As chairman, I called a meeting of the members to consider the resignation of their medical officer and put this question to them: "Are you prepared to pay a higher contribution for medical attendance?" They unanimously said, "No." I then put it to them: "Would you like to advertise for another doctor?" This they again unanimously answered in the affirmative.

There are two other doctors practising in this place and, before coming to the conclusion to advertise, the members offered these doctors the post at the same price as their late officer, but they declined it. The society therefore had no other alternative but to advertise for a doctor.

I must say that it is somewhat hard that a body of labouring men should thus be apparently boycotted by the doctors in the place and not even allowed to make their wants known through the ordinary channels of the medical profession. I most certainly shall, unless you are prepared to reconsider your determination not to insert this advertisement, make known as publicly as possible the tyranny of the medical profession, for I can call it by no other name. We hear of trades unionism amongst the working classes, but I do not think from my present experience of the medical profession that it is confined to one class.

Yours faithfully,
HERBERT E. WATSON,
Agent to the Lord Leconfield.

P.S.—There being three doctors in the place I think you are bound to give the name of your informant, otherwise you will be doing them an injustice.—H. E. W.

The agent to the Lord Leconfield has a few things to learn, as well as how to write a polite and coherent letter. Responsible journalists are not to be bounced into accepting advertisements because the agent to "one of the largest private estates in the South of England" makes threats of letting the public know his disapproval of them if any other course is pursued. The demeanour assumed by Mr. Watson may prove efficacious when collecting the rents of the said L.p.e., &c., but off Lord Leconfield's soil he will find it futile. The fact that the medical men i.. the locality refused the post—we thank Mr. Watson for the information—sufficiently proves what the figures we have given indicate. The terms of the Petworth Park Friendly Society are unfair to their medical officer.

DENTISTRY BY LIMITED COMPANY.

WE have received the following letter which does not bear any address upon it. We do not know if the names which it contains are genuine or fictitious:—

Jany. 11th, 1907.

To the Editor of THE LANCET, *London.*

DEAR SIR,—An answer to the following queries in your next issue will oblige.

I carry on the business of chemist and druggist, &c., as a limited company and employ as manager of my extensive dental practice a gentleman to whom patients are referred for treatment under the style of *Doctor Henderson*. This gentleman also uses the initials D.D.S. after his name on cards, notepaper &c., and is advertised as, and calls himself, a Doctor of Dental Surgery. (Walter James Henderson, D.D.S., F.S.Sc. (London).) As he has never been to America is it illegal for him to use this title without having a diploma for it? simply as an advertisement for the good of the business, and can proceedings be taken against him as I know it is impossible to prosecute me for referring to him as such, being a limited company?

I suppose there can be no objection to him exhibiting a diploma such as the Society of Science, London, describing him as a D.D.S., as a harmless form of advertisement, and it is impossible to take any proceedings.

Although he holds no degree, &c., is there anything to prevent him taking apprentices to learn dentistry?

Your kind reply in an early issue will oblige, as I shall feel sure your replies will be legally correct, and I wish to keep within the law, and avoid losing money. Please reply to,

G. COVERDALE, LTD.

The Dentists Act of 1878 was passed for the purpose of protecting the public from irregular and unqualified dental practitioners. It is no part of the duty of a journal devoted to medical sciences to point out to correspondents the methods by which the legal provisions of the Act can be circumvented and irregular practice indulged in without incurring such penalties as are at present attached to it. We publish this letter because it is a good sample of the tactics to which the public is likely to become a prey owing to the unsatisfactory conditions of the Medical, Dental, and also the Pharmacy Acts.

LOATHSOME BED-STUFFING.

To the Editors of THE LANCET.

SIRS,—My attention has been called to a letter appearing in your paper on "Loathsome Bed-stuffing," and I am pleased to note that Mr. W. T. Ellery has had the courage to speak up to his conviction. Would that other manufacturers did the same.

Writing from an outside point of view, I do not think the manufacturers are altogether to blame, but I consider the makers of the beds and mattresses are at fault; they buy a common class shoddy—in fact, made from what Mr. Ellery describes to be "the commonest and dirtiest rags obtainable"; this they stuff the bedding with and label it with such words as "sanitary" or "purified." Such words as these are misleading and beguile the public into buying a cheap article, leading them to think it is perfectly hygienic.

I am, Sirs, yours faithfully,
Jan. 19th, 1907. SANITAS.

THE TREATMENT OF "NEURALGIA."

To the Editors of THE LANCET.

SIRS,—In answer to your correspondent who in your issue of Jan. 5th asked for suggestions as to the treatment of a case of brachial neuralgia, I would point out that certain cases of a similar condition have been reported as being relieved by the application of the cataplasma kaolini of the United States Pharmacopœia. This, according to the sixth edition of Shoemaker's "Materia Medica and Therapeutics," contains kaolin with glycerine as an excipient and boric acid, methyl salicylate, and oil of peppermint. It should be applied warm and confined with a bandage. I am, Sirs, yours faithfully,
Jan. 19th, 1907. M.R.C.S.

HUMMING AND SINGING.

AT a recent meeting of the Bedford board of guardians the question of accepting the resignation of the head nurse at the workhouse infirmary came up. We cannot gather from the report what led to the nurse sending in her resignation, but it is clear that there was no serious cause. In the course of the discussion, however, Mr. Pettit, a guardian, is reported as saying: "The matron won't have the nurse singing or humming about her work. Now, I maintain that if any one is sick or dull and has a nurse about always humming and with a cheerful countenance it is better than medicine (hear, hear), and for any one to say another shall not sing or hum is to take the sunshine out of one's life, while to reprimand her about that is very, very, very—well, I'll leave off there" (laughter).

Now with all due respect to Mr. Pettit we quite agree that a cheerful nurse is much better than a gloomy one, but we cannot hold that when one is sick and dull a nurse who sings and hums is desirable. Anything more aggravating we cannot conceive. Mr. Pettit must have derived his ideas from that class of novel which describes the joy of hearing a young girl's voice about the house,

singing blithely over her work. A well-known physician, now dead, gave a description of the proper way to prepare a salad, which we recommend to Mr. Pettit's attention. "The salad ought to be dressed by one of the daughters of the house, after she herself was dressed for dinner, singing, *if not with voice*, with her clean cool fingers, sharp silver knife, and wooden spoon. ....." The italics are our own, and so we say that the cheerful nurse should sing "not with voice."

JERRY-BUILT DWELLINGS.

AT a recent inquest in the Battersea coroner's court a bricklayer, whose little child had perished in the fire which burnt down the house in which he lived, said: "The place was so jerry built that when my fires have not been alight smoke has come through from the next door neighbour's." A fireman who found the little girl's body gave evidence that the lath and plaster was only one and a quarter inches thick and that the flooring was five-eighths of an inch in thickness. Further evidence showed that the house was built about 30 or 40 years ago and was of a stamp common in the locality. Presumably modern building Acts would prevent such a structure being put up at the present time, but the risk of accidental fire taking place in houses which have stood for 40 years is not one which can be established so as to enable them to be closed. It is at least a matter for congratulation that the efforts made to protect the poor against the jerry-builder are bearing some fruit in the shape of new houses of a better type than the old ones which they are gradually replacing.

Liverpool.—The strength of the solution mentioned by our correspondent is correct but he omits to mention what "indicator" he employs. If the soda solution contained carbonate the results would be misleading if an indicator sensitive to CO_2 were used. To be quite certain the best plan is to check the soda solution by running in decinormal acid, using the same indicator as in the experiment.

R. W. J.—We regret the delay in answering our correspondent's question, but it was necessary that we should make an inquiry. We understand that no discourtesy whatever was intended. The hospital in question was almost certainly following a rule which exists in other hospitals that such certificates should be filled up by someone appointed by the institution.

M.D.—We agree that the advertisements are disgraceful and have made reference to them. We understand that there is difficulty in the police taking action in the matter.

Kenelm.—We have not under our hand the references which our correspondent asks for. We will, however, attempt to obtain them.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (29th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (30th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.).

THURSDAY (31st).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.).

SATURDAY (2nd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (28th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8.30 P.M.: Discussion on Some Points in the Diagnosis and Treatment of Laryngeal Cancer (introduced by Sir Felix Semon, C.V.O.).

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (20, Hanover-square, W.).—7 P.M.: Council Meeting. 8 P.M.: Casual Communications:—Dr. W. L. H. Duckworth: A Note on the Dentition of Some New Guinea Skulls.—Mr. H. B. Gardner: Continuous Nasal Administration of Nitrous Oxide with Oxygen. Paper:—Mr. P. Turner: Tumours of the Superior Maxilla (illustrated with microscopic sections and specimens).

WEDNESDAY (30th).—BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (20, Hanover-square, W.).—5.30 P.M.: Discussion on the Influence of Climate upon Gout, Rheumatism, and Rheumatoid Arthritis (introduced by Dr. C. W. Buckley (Buxton). Dr. J. Groves (Isle of Wight), Dr. H. Cumming (Torquay), Dr. P. Lewis (Folkestone), and others hope to take part in the discussion.

THURSDAY (31st).—OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-square, W.).—8 P.M.: Card Specimens. 8.30 P.M.: Papers:—Mr. S. Snell: (1) A Case of Tubercle of the Eyeball in which the Opsonic Index was regularly taken; (2) A Family Tree of Nyctalopia.—Mr. A. Lawson: Two Cases of Streptococcic Infection of the Conjunctiva.—Mr. G. B. James: Some Notes on Stereoscopic Vision.

FRIDAY (1st).—SOCIETY OF ANÆSTHETISTS (20, Hanover-square, W.).—8.30 P.M.: Paper:—Dr. L. Guthrie: Poisonous After effects of Chloroform and of Ether.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (28th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. G. Little: Clinique. (Skin.) 5.15 P.M.: Lecture:—Dr. A. J. Whiting: Traumatic Neurosis.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—12 noon: Pathological Demonstration:—Dr. G. C. Low. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M.: Clinical Lecture:—Dr. Saunders.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—9.30 A.M.: Clinique:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Cliniques: Medical Out-patient (Dr. Whipham), Throat, Nose, and Ear (Mr. Carson); X Ray Demonstration (Dr. Pirie).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Sir D. Duckworth: Medicine. 3.15 P.M.: Mr. W. Turner: Surgery. 4 P.M.: Dr. StClair Thomson: Diseases of the Throat, Nose, and Ear. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat. Special Lecture:—Dr. StClair Thomson: Nasal Suppuration.

TUESDAY (29th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. E. Cautley: Clinique. (Medical.) 5.15 P.M.: Lecture:—Mr. A. H. Cheatle: The Surgical Anatomy of the Temporal Bone, its Bearings on Suppuration (with lantern slides).

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Lecture:—Dr. Low: Ankylostomiasis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—10.30 A.M.: Clinique:—Medical Out-patient (Dr. Auld). 2.30 P.M.: Surgical Operations (Mr. Carson); Cliniques: Gynæcological Out-patient (Dr. Giles), Surgical Out-patient (Mr Edmunds). 4.30 P.M.: Lecture Demonstration:—Mr. Cooper: Electro-diagnosis.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. T. Hewlett: Medicine. 3.15 P.M.: Mr. Carless: Surgery. 4 P.M.: Mr. M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. Tooth, C.M.G.: Cerebral Palsies of Infancy.

CHARING CROSS HOSPITAL.—4 P.M.: Demonstration:—Dr. Murray: (Medical). (Post-Graduate Course.)

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—3 P.M.: Prof. A. C. Seward: Survivals from the Past in the Plant World. (Lecture I.)

WEDNESDAY (30th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. P. L. Daniel: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Dr. H. L. Jones: Cervical Ribs and Muscular Atrophy of the Hands (with lantern slides).

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Dr. Robinson: Diseases of Women. 5 P.M.: Lecture:—Mr. Pardoe: The Treatment of Stricture of the Urethra

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—2.30 P.M.: Cliniques:—Dermatological (Dr. Meachen), Ophthalmological (Mr. Brooks), Medical Out-patient (Dr. Whipham).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. Wells: Medicine. 3.30 P.M.: Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye. Special Lecture: Mr. Cargill: Iritis.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M.: Demonstration:—Mr. Stuart-Low: Middle Ear and Labyrinth.

THURSDAY (31st).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Mr. L. Mummery: Rectal Hæmorrhage, its Causation and Treatment.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M.: Lecture:—Mr. Baldwin: Practical Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—2.30 P.M.: Gynæcological Operations (Dr. Giles). Cliniques:—Medical (Dr. Whiting), Surgical Out-patient (Mr. Carson). 3 P.M.: Clinique:—Medical In-patient (Dr. Chappel). 4.30 P.M.: Lecture:—Dr. Macdonald: The Pathology of the Pneumonias.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. G. Rankin: Medicine. 3.15 P.M.: Sir W. Bennett: Surgery. 4 P.M.: Dr. H. Cooper: Radiography. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat. Special Lecture:—Dr. Rankin: Angina Pectoris.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—6 P.M.: Chesterfield Lecture:—Dr. M. Dockrell: Treatment (Constitutional and Local in all its Forms).

CHARING CROSS HOSPITAL.—4 P.M.: Mr. Boyd: Demonstration (Surgical). (Post-Graduate Course.)

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M.: Lecture:—Mr. Fairbank: Hip Disease.

FRIDAY (1st).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. D. Grant: Clinique. (Ear.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Lecture:—Mr. C. William: X Rays, Diagnosis and Treatment (with lantern slides).

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—9.30 A.M.: Clinique:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Surgical Operations (Mr. Edmunds). Cliniques:—Medical Out-patient (Dr. Auld), Ophthalmological (Mr. Brooks). 3 P.M.: Clinique:—Medical In-patient (Dr. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. Bradford: Medicine. 3.15 P.M.: Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. Ferrier: Cases from the Wards.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—9 P.M. Sir A. E. Wright: The Methods of Combating the Bacteria of Disease in the Interior of the Organism.

SATURDAY (2nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Dr. Robinson: Diseases of Women.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich.)—2.30 P.M.: Operations. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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We cannot prescribe or recommend practitioners.

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Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1906, which was completed with the issue of Dec. 29th, were given in THE LANCET of Jan. 5th, 1907.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1906 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan 24th, 1907.

Date.	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rain-fall	Solar Radia in Vacuo	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan. 18	30·740	E.	...	45	41	37	38	38	Foggy
" 19	30·620	E.	...	38	37	35	36	36	Foggy
" 2[illegible]	30·640	E.	...	41	40	36	37	39	Overcast
" 21	30·560	S.W.	0·02	53	46	39	39	40	Overcast
" 22	30·344	S.E.	.	40	39	37	38	39	Overcast
" 23	30·804	E.	...	37	30	26	...	26	Overcast
" 24	30·530	E.	.	36	28	24	...	25	Cloudy

During the week marked copies of the following newspapers have been received *Daily Chronicle, Liverpool Courier, Daily Telegraph, Birmingham Post, Dublin Times, Hereford Times, Surrey Advertiser, Dublin Independent, Sheffield Independent, Westminster Gazette, Daily News, Cardiff Evening Express, Belfast Whig, Isle of Wight County Press, Times of India, Northampton Mercury,* &c.

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